

HANDBOOK OF
South American
ARCHAEOLOGY

EDITED BY

Helaine Silverman • William H. Isbell



 Springer

The Handbook of South American Archaeology

The Handbook of South American Archaeology

Edited by

Helaine Silverman

*University of Illinois at Urbana-Champaign
Urbana, IL*

and

William H. Isbell

*State University of New York- Binghamton
Binghamton, NY*

 Springer

Helaine Silverman
Department of Anthropology
University of Illinois
Urbana, IL 61801
email: helaine@uiuc.edu

William H. Isbell
Department of Anthropology
State University of New York
Binghamton, NY 13902
email: huari@aol.com

ISBN: 978-0-387-75528-0 e-ISBN: 978-0-387-79407-5
DOI: 10.1007/978-0-387-79407-5

Library of Congress Control Number: 2008920390

© 2008 Springer Science+Business Media, LLC

All rights reserved. This work may not be translated or copied in whole or in part without the written permission of the publisher (Springer Science+Business Media, LLC, 233 Spring Street, New York, NY 10013, USA), except for brief excerpts in connection with reviews or scholarly analysis. Use in connection with any form of information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed is forbidden.

The use in this publication of trade names, trademarks, service marks and similar terms, even if they are not identified as such, is not to be taken as an expression of opinion as to whether or not they are subject to proprietary rights.

Cover images

Front cover (clockwise from lower left): Figure 22.2 from book: Ceramic female representation, Betancí style, Colombia. Fig 12.19 from book: Barracanoid ceramics from the lower Orinoco, a biomorphic head surmounted by a harpy eagle (ca. 900-500 BC). Fig 16.8 from book: Late Aristé polychrome funerary urn, Tour Reliquaire cave, Oyapock Bay, French Guiana

Spine: Fig 17.10 from book: Lip plug made of shell, Hertenrits Culture. The specimen is 4.7 cm high.

Background image: Figure 40.8 from book: Inca-style cloth, of the fine variety (kumpi), was produced by specialists, often women, and employed in events that displayed and conferred status. This example is one of the finest Inca tunics known. It is decorated all over with the tocapu motif. (Copyright: Dumbarton Oaks, Pre-Columbian Collection, Washington, DC; Object accession number PC.B.518; used with permission)

Printed on acid-free paper

9 8 7 6 5 4 3 2 1

springer.com



Dedicated to the memory of Craig Morris, an esteemed and amiable colleague to many of the Andeanists contributing to this volume and to the worldwide Andeanist community. He is remembered for his generosity, always genteel Southern charm, and pioneering Inca research.



Dedicated to the memory of James (Jim) Petersen, colleague and friend of many of the contributors to this volume, who was killed tragically in 2005 in a hold-up in Brazil, while he was conducting fieldwork. He is remembered as a wonderful person and exceptional archaeologist.

Contributors

- Félix A. Acuto**, Department of Anthropology, Binghamton University-SUNY, Binghamton, NY 13902
- Mark S. Aldenderfer**, Department of Anthropology, University of Arizona, Tucson, AZ 85721
- Bernardo T. Arriaza**, Instituto de Alta Investigación, Departamento de Antropología, Universidad de Tarapacá, Arica, Chile.
- Rossano Lopes Bastos**, IPHAN/Archaeological Management, Universidade Reunidas do Rio Uruguai e das Missões – Campus Erechim, Rio Grande do Sul (RS), Brazil
- O. Hugo Benavides**, Department of Sociology and Anthropology, Fordham University, Bronx, NY 10458
- Luis Alberto Borrero**, Departamento de Investigaciones Prehistóricas y Arqueológicas, Instituto Multidisciplinario de Historia y Ciencias Humanas, Consejo Nacional de Investigaciones Científicas y Técnicas, Buenos Aires, Argentina
- Tamara L. Bray**, Department of Anthropology, Wayne State University, Detroit, MI 48202
- Richard L. Burger**, Department of Anthropology, Yale University, New Haven, CT 06520
- Vicki Cassman**, Art Conservation Department, University of Delaware, Newark, DE 19716
- Luis Jaime Castillo Butters**, Programa de Arqueología and Oficina de Relaciones Internacionales, Pontificia Universidad Católica del Perú, Lima, Peru
- Warren B. Church**, Department of Chemistry and Geology, Columbus State University, Columbus, GA 31907
- R. Alan Covey**, Department of Anthropology, Southern Methodist University, Houston, TX 75275
- Paulo DeBlasis**, Museu de Arqueologia e Etnologia, Universidade de São Paulo, Brazil
- Florencio Delgado-Espinoza**, Antropología, Colegio de Artes Liberales, Universidad San Francisco de Quito, Quito, Ecuador
- Tom D. Dillehay**, Department of Anthropology, Vanderbilt University, Nashville, TN 37235
- Robert D. Drennan**, Department of Anthropology, University of Pittsburgh, Pittsburgh, PA 15260
- Jalh Dulanto**, Programa de Arqueología, Pontificia Universidad Católica del Perú, Lima, Peru
- Clark L. Erickson**, Department of Anthropology, University of Pennsylvania, Philadelphia, PA 19104
- Paul R. Fish**, Arizona State Museum, Tucson, AZ 85721
- Suzanne K. Fish**, Arizona State Museum, Tucson, AZ 85721

- Pedro Paulo A. Funari**, Historical Archaeology, Universidade Estadual de Campinas and Museu de Arqueologia e Etnologia da Universidade de São Paulo, Brazil
- Maria Dulce Gaspar**, Museu Nacional, UFRJ/CNPq, Cientista do Nosso Estado –FAPERJ, Rio de Janeiro, Brazil
- Cristóbal Gnecco**, Departamento de Antropología, Universidad del Cauca, Popayán, Colombia
- Vera Guapindaia**, Museu Paraense Emílio Goeldi, Belém, Brazil
- Jean Guffroy**, Centre IRD/ Institut de Recherche pour le Développement, Orléans, France
- Christine A. Hastorf**, Department of Anthropology, University of California, Berkeley, CA 94720
- Michael J. Heckenberger**, Department of Anthropology, University of Florida, Gainesville, FL 32611
- Alvaro Higuera**s, University of Rome 2 - Tor Vergata, Rome 00195, Italy
- William H. Isbell**, Department of Anthropology, Binghamton University-SUNY, Binghamton, NY 13902
- George F. Lau**, Sainsbury Research Unit for the Arts of Africa, Oceania and the Americas, University of East Anglia, Norwich, United Kingdom
- Juan B. Leoni**, Department of Anthropology, Binghamton University-SUNY, Binghamton, NY 13902
- Carol J. Mackey**, Department of Anthropology, California State University, Northridge, CA 91330
- Krzysztof Makowski**, Programa de Arqueología and Decano de la Facultad de Letras y Ciencias Humanas, Pontificia Universidad Católica del Perú, Lima
- Maria A. Masucci**, Department of Anthropology, Drew University, Madison, NJ 07940
- Colin McEwan**, Department of Africa, Oceania and the Americas, The British Museum, London, United Kingdom
- Jerry D. Moore**, Department of Anthropology, California State University, Dominguez Hills, CA 90747
- Rodrigo Navarrete**, La Florida, Caracas, Venezuela
- Eduardo Góes Neves**, Museu de Arqueologia e Etnologia, Universidade de São Paulo, Brazil
- Francisco Silva Noelli**, Laboratorio de Arqueologia, Etnologia e Etno-História, Universidade Estadual de Maringá, PR, Brazil
- José R. Oliver**, Institute of Archaeology, University College London, London, United Kingdom
- Augusto Oyuela-Caycedo**, Department of Anthropology, University of Florida, Gainesville, FL 32611
- Deborah M. Pearsall**, Department of Anthropology, University of Missouri, Columbia, MO 65211
- Gustavo Politis**, División Arqueología, Facultad de Ciencias Naturales y Museo, Paseo del Bosque s/n, (1900) La Plata, Argentina
- Shelia Pozorski**, Department of Psychology and Anthropology, University of Texas-PanAmerican, Edinburg, TX 78539
- Thomas Pozorski**, Department of Psychology and Anthropology, University of Texas-PanAmerican, Edinburg, TX 78539
- Donald A. Proulx**, Department of Anthropology, University of Massachusetts, Amherst, MA 01003

- J. Scott Raymond**, Department of Archaeology, University of Calgary, Calgary, Alberta, Canada
- James B. Richardson III**, Department of Anthropology, University of Pittsburgh, Pittsburgh, PA 15260
- Mario A. Rivera**, Department of Anthropology, Beloit College, Beloit, WI 53511
- Stéphen Rostain**, C.N.R.S. Maison René Ginouvés-Archéologie & Ethnologie, UMR 8096 “Archéologie des Amériques”, Nanterre Cedex, France
- Ernesto Salazar**, Escuela de Antropología, Universidad Católica del Ecuador, Quito, Ecuador
- Daniel H. Sandweiss**, Department of Anthropology, University of Maine, Orono, ME 04469
- Calogero M. Santoro**, Instituto de Alta Investigación, Departamento de Antropología, Universidad de Tarapacá, Arica, Chile
- Isabel Scarborough**, Department of Anthropology, University of Illinois, Urbana, IL 61801
- Denise Pahl Schaam**, Faculdade de Ciências Sociais, Universidade Federal do Pará Belém, PA, Brazil
- Helaine Silverman**, Department of Anthropology, University of Illinois, Urbana, IL 61801
- Peter W. Stahl**, Department of Anthropology, Binghamton University-SUNY, Binghamton, NY 13902
- Vivien G. Standen**, Departamento de Antropología, Universidad de Tarapacá, Arica, Chile
- Emily Stovel**, Department of Anthropology, Ripon College, Ripon, WI 54971
- Tiffany A. Tung**, Department of Anthropology, Vanderbilt University, Nashville, TN 37235
- Santiago Uceda Castillo**, Universidad Nacional de Trujillo, Trujillo, Peru
- Gary Urton**, Department of Anthropology, Harvard University, Cambridge, MA 02138
- Francisco Valdez**, IRD/Institute de Recherche Pour le Développement, Instituto Nacional del Patrimonio Cultural, Quito, Ecuador
- John W. Verano**, Department of Anthropology, Tulane University, New Orleans, LA 70118
- Gustavo Verdesio**, Department of Romance Languages and Program in American Culture/ Native American Studies, University of Michigan, Ann Arbor, MI 48109
- Aad H. Versteeg**, Stichting Surinaams Museum, P.O. Box 2306, Paramaribo, Suriname
- Adriana von Hagen**, Miraflores, Lima, Peru
- John H. Walker**, Department of Anthropology, University of Central Florida, Orlando, FL 32816
- Norman Yoffee**, Department of Anthropology and Department of Near Eastern Studies, University of Michigan, Ann Arbor, MI 48104
- James A. Zeidler**, Center for Environmental Management of Military Lands, Colorado State University, Fort Collins, CO 80523

Foreword

Perhaps the contributions of South American archaeology to the larger field of world archaeology have been inadequately recognized. If so, this is probably because there have been relatively few archaeologists working in South America outside of Peru and recent advances in knowledge in other parts of the continent are only beginning to enter larger archaeological discourse. Many ideas of and about South American archaeology held by scholars from outside the area are going to change irrevocably with the appearance of the present volume. Not only does the *Handbook of South American Archaeology* (HSAA) provide immense and broad information about ancient South America, the volume also showcases the contributions made by South Americans to social theory. Moreover, one of the merits of this volume is that about half the authors (30) are South Americans, and the bibliographies in their chapters will be especially useful guides to Spanish and Portuguese literature as well as to the latest research.

It is inevitable that the HSAA will be compared with the multi-volume *Handbook of South American Indians* (HSAI), with its detailed descriptions of indigenous peoples of South America, that was organized and edited by Julian Steward. Although there are heroic archaeological essays in the HSAI, by the likes of Junius Bird, Gordon Willey, John Rowe, and John Murra, Steward states frankly in his introduction to Volume Two that “archaeology is included by way of background” to the ethnographic chapters. Although these archaeological essays have been superseded by the last half-century of research, HSAI deservedly remains on the shelves of most South Americanists.

In 1999 the *Cambridge History of the Native Peoples of the Americas*, edited in two volumes by Stuart Schwartz and Frank Salomon, included eight long and valuable essays on South American archaeology. It seems that the Cambridge volume is in some ways a handy successor to the HSAI, covering large areas in significant depth.

In the present volume, the chapters are shorter and many deal with smaller areas (or very interesting particular topics such as ancestor images, trophy heads, human sacrifices, and khipus), but the HSAA spans the continent and gives a much fuller picture of archaeological research in South America than the Cambridge volume intended to do. The HSAA chapters include the peopling of the continent and early occupations, the kinds of environments and the natural resources exploited in them, and many descriptions of the archaeology of areas hardly mentioned in any other guide to the archaeology of South America: for example, the southern Andes, Patagonia, Ecuador, Guianas and Surinam, the Peruvian cloud forest, and strikingly, Brazil, both the Amazonian part and the inland and coastal regions. Although Brazil comprises about half the area of the continent, there is only one recent volume of the archaeology of the entire country, and it is in French and—given the astonishing pace of research in Brazil—dated. The chapters by Oliver, Neves, Schaan,

Gaspar and colleagues, Noelli, Guapindaia, Heckenberger, and Bastos and Funari provide an up-to-date view on much that is going on in Brazilian archaeology.

It is in its theoretical contributions that I, as a non-South Americanist, am most interested. Authors of many chapters make clear that types and categories of societies derived from North Americanist social theory really do not apply to South American societies. Even the chief of South American chiefdoms, Robert Drennan, declares his discomfort with the type of “chiefdoms,” which tends unfairly to reduce the variation in societies that encompass more than a single local community with some degrees of social inequality. Other authors discuss non-agricultural “chiefdoms” or even how the term “evolution” tends to mask the amount of and reasons for change occasioned by migrations and exchange of goods and ideas. More than one author speaks of the history of societies, not their evolution. Some authors note that Julian Steward himself insisted on “multi-lineal evolution,” precisely because there were many hierarchies and kinds of hierarchies in the history of South America.

“Complexity” covers everything from enormous shell mounds (sambaquis) in southern Brazil, which are scenes of mortuary rites and feasting, to “towns” and complex regional organizations in the Amazon. The question about “complexity” in South America, just as it is for other parts of the world, is not “was a society complex?” but “how was it complex?” (as Ben Nelson has articulated in comparing the prehistoric Southwest and Northwest Mexico). The discussions of these issues are relevant beyond South America. Authors also have persuasively critiqued the use of “horizons” and “intermediate periods,” as if the latter were awaiting “horizontalization.”

The *HSAA* authors not only describe new archaeological work in South America but also place the work in the social context of archaeological research. For example, several essays are devoted to how archaeology forms part of the national identity of South American countries. This is particularly vivid in South America where nations have recently shaken off military rule and/or are challenging trends in globalization.

Several archaeologists are optimistic that archaeology can play a significant role in subverting colonial versions of their deep history. I have seen new Brazilian school texts in which archaeological research is now considered part of Brazilian history. As recognition grows that prehistoric Indians, on the coast and in the Amazon, created impressive monuments and works of art, lived in towns of considerable population, and both altered and lived successfully in rich environments, perhaps one can be optimistic that there will be changes in the already zestfully complicated Brazilian national identity and in social and political life.

Brazil is the only country in South America I know even in small measure since I have attended archaeological conferences there and visited sites. The first of these conferences brought archaeologists from the University of Arizona to southern Brazil, the second archaeologists from University of Michigan to a variety of Brazilian universities and the cultural resources management organization. Although it was wonderful to exchange ideas and consider new data on both sides, we visiting North Americans were surprised that Brazilian archaeologists had relatively little contact with other archaeologists in South America, especially the army of Peruvian archaeologists, and the considerable number of Argentinian ones, who are relatively nearby. The *HSAA* shows how important such ties among South American archaeologists need to be. On the one hand, several essays demonstrate how local prehistoric cultures were embedded in long-distance exchange networks. Archaeologists need to cross present borders in order to appreciate the dynamics of this interaction. Just as important, archaeologists from various regions in South America have

much to learn from each other, about legal issues of cultural heritage that have continent-wide roots, as well as about theoretical concepts such as agency, landscape, and appropriations of the past, which are subjects of many chapters in this volume.

The readers of this volume hold in their hands many treasures, and they will surely join me in applauding the editors who have cannily gathered these archaeologists, a mixture of younger and venerable scholars, and translated many of their essays.

Handbooks are not destined to have a long life, but the best of them delineate, as far as possible, the state of knowledge in a domain and thus influence the direction of research. The *HSAA* is not only a *vade mecum* of new findings and new ideas in South American archaeology, but it is also an enthusiastic demonstration of the importance of (and also the fun in doing) archaeology in South America.

Norman Yoffee

Preface

The Ford Foundation, which promoted the creation of and has remained committed to area studies, recently advocated a revitalization of this field under the rubric of “crossing borders” (Ford Foundation 1999). The Ford Foundation articulates a proactive policy designed to foster “networks and new collaborations,” stating that ultimately, the revitalization of this crucial scholarly field should enhance international cooperation through an internationalized community of area studies, and foster a better informed citizenry (Ford Foundation 1999: vii). We conceive of the *Handbook of South American Archaeology* as a contribution to area studies and agree with the Ford Foundation’s intellectual platform. We have tried to achieve it in this volume through engagement of an international roster of scholars as well as the final section of the *HSAA* which considers the practice of South American archaeology in its contemporary context.

We feel a keen sense of legacy and fateful serendipity in having been offered the *HSAA* project by our wonderful editor at Springer, Teresa Krauss. Bill received his doctorate at the University of Illinois, Urbana-Champaign, in the anthropology department founded by Julian H. Steward in 1952. Bill was deeply influenced by the extraordinary Donald Lathrap, who taught a truly South American archaeology in vast ecological and evolutionary perspective at the University of Illinois. Helaine was strongly influenced by her training at Columbia University (where Steward had taught in 1946-1952, before moving to Illinois), where she studied with the great Edward Lanning (who brought a strong ecological and evolutionary perspective to Peruvian archaeology), Morton Fried (who had been taught by Steward at Columbia), and Robert Murphy (including as a research assistant to Dr. Murphy while he was editing Steward’s posthumous *Evolution and Ecology*). Steward was deeply involved in the Viru Valley Project, which became a benchmark in Peruvian archaeology. In 1991 Helaine began teaching at the University of Illinois.

Both of us came to the *HSAA* project with a profound understanding of and respect for Steward and his commitment to holistic, supra-areal anthropology. Teresa Krauss was unaware of Steward and our intellectual connections to him when she commissioned the *HSAA* as part of Springer’s new handbook series. We thank her for giving us this remarkable opportunity to contribute to the field that has impassioned us for many decades. We have learned an enormous amount and hope very much that readers will similarly benefit.

The greatest challenge we faced in producing the *Handbook of South American Archaeology*, after lining up authors, was how to organize its content. Any organizational scheme—from phylogenetic tree to chronological chart—seeks to organize knowledge. Julian H. Steward’s original geo-cultural scheme for the earlier *Handbook of South American Indians* (1946-1949) is still serviceable albeit theoretically and empirically dated as seen from our turn-of-the-twenty-first-century standpoint. In the case of the *HSAA*, our goal has been to usefully organize knowledge about the prehistory of this continent.

“Useful for teaching and scholarly consultation” has been our guiding premise. But academic reality indicates that few colleagues are teaching the whole continent, so we had to devise a scheme that accounts for greatly increased areal knowledge since the 1940s, promotes greater interareal comparison (so long as all chapters would be read), and stimulates the reader with new ideas.

Basically, the organizational possibilities for the *HSAA* seemed limited to three: geographical, the traditional culture areas, and temporal-evolutionary. Since this is a handbook, whose intent is to provide the reader with foundational archaeological information about particular societies and regions, in the end we saw no way but to deal with a mix of all: geography, culture area, and the Stewardian levels of sociocultural integration (i.e., moving across the continent from early settlements, to Archaic lifeways, to greater complexity, and finally “states and empires”). We have tried to not break apart certain areally synthetic chapters so that the evolutionary trajectories being described are not lost, while not essentializing particular regions such as the Central Andes. Also, we have tried to transcend fraught classifications by adding cross-cutting new topics such as patterns of interaction and death practices (although, for instance, Arriaza et al.’s Chinchorro chapter could easily have been placed in the latter section as could Gaspar et al.’s interpretation of the sambaquis as mortuary monuments) as well as by including examples from various parts of South America in most of the sections (except “states”).

We have organized the volume’s sections according to several grand themes that we see as salient, but recognize that other scholars would have chosen other themes. Alternative organizational schemes, which we considered seriously, would have produced an equally coherent volume. Also, even within the final framework certain chapters could have been placed in more than one section of the *HSAA* (for instance, Schaan’s treatment of Marajó Island could have been placed in the section on lowland moundbuilders and Heckenberger’s discussion of Amazonia could have been placed in the section on non-state complexity). We have sought to strike a balance in the *HSAA*, yet recognize that criticism surely will be forthcoming when this volume is reviewed. The important thing is that the *HSAA* provides intensive and extensive coverage of South American prehistory. We propose that readers and, particularly, professors use this volume’s chapters according to whatever sequential, geographic, or thematic scheme they are most comfortable with.

Our final organizational decision has privileged the commission we received from Springer to create a *handbook* which we and the publisher understand as a reference work to be consulted for basic information. Thus, each author was asked to lay out the major issues in his/her region or time period or archaeological culture, present an up-to-date assessment, and provide sufficient bibliographic references for the interested reader to pursue the topic further. Moreover, we have highlighted important debates in South American archaeology, some of which run through several related chapters (note, for instance, the arguments of the Pozorskis, Makowski, and Burger). Interpretive disagreements among several sets of authors are reflections of the exciting threshold stage of particular regional and macro-regional archaeologies at this moment.

We especially call your attention to the way we have arranged Part VI on “Demographic and Cultural Expansions.” We envision this section as a circle, beginning with the dramatic situation on the coast of Peru in the third through mid-first millenniums BC as fascinatingly analyzed by Shelia and Tom Pozorski, leading logically into Krzysztof Makowski’s consideration of Andean urbanism, then considering a set of population movements documented by Francisco Noelli in Amazonia, then leading into Tiffany

Tung's comparative case study of migration in the Central Andes, and finally returning to the end of the Pozorskis' discussion through the focus of Richard Burger's chapter, which is the great Chavín horizon, itself involving "proto-urbanism" but not state-level organization. This then sets the stage for the following section on Central Andean states and empires, Part VII. Here we have placed Dulanto's discussion of many less centralized (comparatively speaking) late prehispanic societies that existed in the centuries between the fall of the Wari Empire and rise of the Incas, and contemporaneously with the great Chimú Empire, and that are the *realpolitik* context of various decisions made by the Inca imperial administration.

For every chapter included, other chapters that were discussed by the editors in the commissioning stage were not included. This was due to two factors. First, lack of space but not lack of interest. Given the mammoth size of the *HSAA* we had to make decisions about what areas or problems to eliminate. It was simply impossible to include every precolumbian culture (notably in the Central Andes) or region. The areas that have seen the most research have received more attention in the volume than other areas. Second, regrettably, several important chapters that we commissioned were never turned in despite our repeated exhortations to their intended authors and attempts to secure alternate authors [Note 1]. Finally we had to go to press without these chapters as timely publication of the *HSAA* had to take precedence over exhaustive coverage of the continent. Hopefully, timely publication of the *HSAA* compensates for omissions by stimulating future discussion and research on the issues brought to the fore or, to the contrary, under-represented in its pages.

The task of actually putting the volume together has been arduous. Papers were read, sent back for revision, and received and edited again, then formatted in standardized manner. Some spellings have been regularized, but the orthography of many terms varies among chapters according to author preferences. For many of the papers written by English-as-a-second-language or non-English speakers, texts had to be checked and double-checked to make sure that editing or translation did not change the meaning from the original language of the author. We have emphasized easy readability over literal translation.

Figures underwent various modifications but some illustrations were never made as high quality as we would have liked authors to have done. Also, a few authors did not send their figures (again, despite repeated pleas); their absence in those chapters is greatly lamented. But we could not hold up the volume's production schedule further.

There also are some missing or incomplete references because authors did not provide these and we were unable to generate them.

Communication was sometimes difficult as many of the contributors were in and out of the field around the entire continent over the past two years, resulting in some issues remaining unresolved. Prompt and current publication seemed more important than waiting to include the missing materials. We hope readers will not be distracted by these flaws and generously understand our editorial constraints.

We thank all contributors for their papers. Truly, we are thrilled with the coverage of the volume, the quality of the chapters, and how much we have learned about South American archaeology from the contributors.

We conclude by expressing our enormous admiration for the original *Handbook of South American Indians*. It remains a magnificent compilation of knowledge about South American archaeology and ethnography and has served as an inspiration for decades of fieldwork thereafter.

DATING ISSUES

The prehistory of South America, like that of other continents, is complicated and sometimes confusing because of different scales in terms of which past events are discussed by archaeologists. Dates from the past may be presented as BP dates – before present – or as BC/AD dates – before and after the beginning of the Christian era, respectively. Of course, a date given as BP is about 2,000 years (actually, 1,950 years) greater than the same date given in the BC scale, so something that occurred about 5000 BP can also be said to have taken place about 3000 BC. Readers must always be alert to which system is employed in a particular discussion. This problem is even graver when calibrated and uncalibrated dates are used.

Most dates for human activity in South America – and for most archaeological records of the past 15,000 or 20,000 years the world over – are acquired from radiocarbon assays on organic materials from archaeological contexts. Results of analyses are reported by radiocarbon laboratories as a number of years BP, plus or minus a standard deviation, also in years (for example 2450 ± 70 BP). However, radiocarbon years have been shown to deviate slightly from calendar years, and a complex curve, known as the “calibration curve” has been developed to correct radiocarbon dates, converting them as precisely as possible to calendar time. So archaeologists not only use the BP and the BC/AD scales, they also present radiocarbon dates as calibrated (also, “calendar,” as well as “corrected”) and uncalibrated. So a date may be given as cal BP or cal BC/AD, as well as traditional or uncalibrated.

Radiocarbon laboratories are constantly dating more samples of wood from tree rings whose actual calendar date was established by dendrochronological counting of growth rings. Consequently, calibration curves (and computerized conversion programs employing them) are gradually becoming more and more accurate. This means that dates calibrated some time ago should be recalibrated with a new curve/program, especially when they are compared with dates calibrated by a new program. So, calibrated radiocarbon dates are now constantly changing.

Calibrated dates are published as cal, such as cal AD 600–800, which is 1350 – 1150 cal BP. All radiocarbon dates collected and assayed over the past several decades will surely require at least a little revision as the calibration curve is (or, more correctly, the several competing calibration curves are) more intensively tested and refined. This fluid situation makes some archaeologists reluctant to assign firm dates to many materials previously collected. But without relatively firm dates, comparisons between cultural sequences and inferences about prehistoric interactions and developments are severely curtailed. Sometimes archaeologists take advantage of the changing calibrated-uncalibrated problem to present their dates as “the earliest,” thereby confusing interpretations of past events.

One might escape this quandary of calibration by deciding to date the past in terms of uncalibrated radiocarbon years only as this would equalize all dates. Moreover, the deviation between radiocarbon and calendar years is not terribly great, and radiocarbon time seems to be stable across vast areas. In fact, most of the authors in this volume have chosen this option.

Some archaeologists work with ancient societies that had their own calendars or counts of years, such as the Maya. For these societies it is vital to convert ancient dates to standard archaeological time to be able to compare across the region and beyond. Archaeologists must correlate events dated by radiocarbon with the calendar-based chronologies. Indeed, the importance of calibration was demonstrated when

Colin Renfrew (1973) showed that the radiocarbon dates for early construction at Stonehenge, when calibrated, turned out to be significantly older than the Mycenaean architecture that was supposed to have inspired the Neolithic Britains. Of course, Mycenaean chronology was based on historical time, while Stonehenge was dated exclusively by radiocarbon dates, which were consistently several centuries younger than corresponding calendar dates.

Calibration of radiocarbon dates permits archaeologists to synchronize cultural and climatic events and this permits worldwide comparisons, a laudable goal. Within particular areas archaeologists must decide on a reporting standard for radiocarbon dates and stick with it so that chronological comparisons are valid. Furthermore, a project to convert all published radiocarbon dates to a single standard is vital. To accomplish this single standard would take a substantial grant from an agency such as the United States' National Science Foundation.

Just as radiocarbon dates of almost 2000 BC for Stonehenge calibrated two or three centuries older than the uncalibrated results, South American dates older than about 1000 BC become earlier, by an increasing order of magnitude as one moves back in time. By about 10,000 BP in radiocarbon years, more or less the beginning of the Holocene Era, calibration adds an antiquity of some 1,500 to 1,900 years—approximately 11,500 to 12,000 cal BP, in this case.

But radiocarbon time is complicated, for deviation from calendar time is not consistent, and the curve is plagued by irregular bumps and troughs. When the number of years in most radiocarbon standard deviations is considered, or doubled to increase the probability that the past event fell within the range of the date presented, the radiocarbon value may intersect several points of the volatile calibration curve, creating different possible calibrations. Indeed, there are spaces, or time periods, along the calibration curve that are highly volatile and others that are quite stable. In general, however, for the past back to about 3000 BP (1000 BC) radiocarbon assays tend to give dates that are older than calendar years. Calibration brings these events forward, into more recent time. For example, because of changes wrought by calibration Isbell (Chapter 37 in this volume) is revising the chronology of the Andean Middle Horizon, formerly thought to begin at about AD 500-550 but now considered to begin at cal AD 600-650 (yet the impact of this revision can not be assessed in the absence of calibration of all dates for a wide range of earlier and contemporary societies). On the other hand, from about 1000 BC back, the calibration of radiocarbon assays tends to produce older dates. At 2000 BC, calibration adds a couple of centuries until at 10,000 BC it adds a millennium and a half, to almost two millennia, which then becomes tremendously significant in discussions about the peopling of South America and its earliest sites.

It would be well for readers to remember that Sandweiss' calibrated dates from maritime settlements, including the pre-Vegas finds in Ecuador (13,000 – 11,400 cal BP), the north Peruvian Amotape campsite (12,200 cal. Yr BP), and the far south Peruvian Ring site (11,400 cal. BP), all date 1,500 to 1,900 years later in radiocarbon time. So they are significantly younger than Monte Verde, dated by Dillehay to about 12,500 BP in radiocarbon years. This should be kept in mind when evaluating arguments favoring an early coastal migration route into South America. Similarly, Andean Late Archaic (Preceramic) and Formative cultures are discussed in two chapters in terms of calibrated chronologies, adding at least two or three, and in the case of the third millennium BC, as much as five centuries to their antiquity, as compared with radiocarbon chronologies employed by the authors who discuss other parts of South America.

The authors of most of the *HSAA* chapters have not calibrated the radiocarbon dates and chronologies they present. Dillehay, Arriaza et al., Borrero, Gaspar et al., Aldenderfer, Navarrete, Politis and others all discuss the past, including the Pleistocene-Holocene transition, in terms of radiocarbon chronologies. Some authors follow the investigators whom they are summarizing in a particular section; thus Pearsall cites one calibrated date, although most of her chronologies are in radiocarbon years. Zeidler does the same, using calibrated dates only for Cotocollao, La Chimba, the elite grave from Valdivia 4 Santa Ana-La Florida. But some chapter authors consistently employ calibrated dates – Sandweiss, Sandweiss and Richardson, Pozorski and Posorski, as well as Burger.

CONVENTIONS USED

Where authors write about the same archaeological culture or site we have tried to standardize spelling. For instance, we have chosen Inca(s) rather than Inka(s). So as not to have pages full of italicization because of the large number of foreign words used, we have put in italics only the Latin names of flora and fauna and just the most occasional word from an indigenous language; otherwise, italics are used for emphasis. Other conventions used are: meters above sea level: masl; kilometers: km; meters: m; centimeters: cm; hectare(s): ha; circa: ca. For the Peruvian relative chronology: Initial Period: IP; Early Horizon: EH; Early Intermediate Period: EIP; Middle Horizon: MH; Late Intermediate Period: LIP; Late Horizon: LH.

NOTES

1. These included much desired chapters on South American historical linguistics, another on molecular genetics to complement the archaeological record for human migration into the continent, another on llama caravaning in the South Andes, and a comprehensive treatment of the Circum-Caribbean societies. With regard to the Circum-Caribbean the commission requested consideration of the evolutionary development of the various societies and the theoretical concepts that have been deployed in their investigation to complement the chapters on Amazonian cultures. We also were interested in the distinctions drawn between Circum-Caribbean and Amazonian cultures by Steward in the *HSAI*, that were later expanded by Steward and Faron (1959), and that contributed importantly to theorizing the chiefdom as a cultural evolutionary stage, and in the longer run, contributed significantly to the study of evolution in intermediate range societies.

REFERENCES

- Renfrew, Colin, 1973, *Before Civilization. The Radiocarbon Revolution and Prehistoric Europe*. Cambridge University Press, London.
- Steward, Julian H. and Louis C. Faron, 1959, *Native Peoples of South America*. McGraw-Hill, New York.

Contents

I. INTRODUCTION

- 1.** | **Continental Introduction** 3
Helaine Silverman

II. EARLY OCCUPATIONS OF SOUTH AMERICA

- 2.** | **Profiles in Pleistocene History** 29
Tom D. Dillehay
- 3.** | **Chinchorro Culture: Pioneers of the Coast
of the Atacama Desert** 45
*Bernardo T. Arriaza, Vivien G. Standen, Vicki Cassman,
and Calogero M. Santoro*
- 4.** | **Early Occupations in the Southern Cone** 59
Luis Alberto Borrero
- 5.** | **The Process of Sedentism in Northwestern South America** 79
J. Scott Raymond

III. ENVIRONMENT AND SUBSISTENCE

- 6.** | **Central Andean Environments** 93
Daniel H. Sandweiss and James B. Richardson III
- 7.** | **Plant Domestication and the Shift to Agriculture in the Andes** 105
Deborah M. Pearsall
- 8.** | **Animal Domestication in South America** 121
Peter W. Stahl

9.	High Elevation Foraging Societies	131
	<i>Mark S. Aldenderfer</i>	
10.	Early Fishing Societies in Western South America	145
	<i>Daniel H. Sandweiss</i>	
11.	Amazonia: The Historical Ecology of a Domesticated Landscape	157
	<i>Clark L. Erickson</i>	
12.	The Archaeology of Agriculture in Ancient Amazonia	185
	<i>José R. Oliver</i>	
13.	Agricultural Earthworks on the French Guiana Coast	217
	<i>Stéphen Rostain</i>	
14.	The Pampas and Campos of South America	235
	<i>Gustavo Politis</i>	

IV. LOWLAND MOUNDBUILDERS

15.	Pre-Columbian Mound Complexes in the Upano River Valley, Lowland Ecuador	263
	<i>Ernesto Salazar</i>	
16.	The Archaeology of the Guianas: An Overview	279
	<i>Stéphen Rostain</i>	
17.	Barrancoid and Arauquinoid Mound Builders in Coastal Suriname.	303
	<i>Aad H. Versteeg</i>	
18.	Sambaqui (Shell Mound) Societies of Coastal Brazil.	319
	<i>Maria Dulce Gaspar, Paulo DeBlasis, Suzanne K. Fish, and Paul R. Fish</i>	

V. CONTINENTAL VARIATIONS IN NON-STATE COMPLEXITY

19.	The Nonagricultural Chiefdoms of Marajó Island	339
	<i>Denise Pahl Schaen</i>	

20.	Ecology, Ceramic Chronology and Distribution, Long-term History, and Political Change in the Amazonian Floodplain	359
	<i>Eduardo Góes Neves</i>	
21.	Chiefdoms of Southwestern Colombia	381
	<i>Robert D. Drennan</i>	
22.	Late Pre-Hispanic Chiefdoms of Northern Colombia and the Formation of Anthropogenic Landscapes.	405
	<i>Augusto Oyuela-Caycedo</i>	
23.	The Prehistory of Venezuela – Not Necessarily an Intermediate Area.	429
	<i>Rodrigo Navarrete</i>	
24.	The Ecuadorian Formative.	459
	<i>James A. Zeidler</i>	
25.	Early Regional Polities of Coastal Ecuador.	489
	<i>Maria A. Masucci</i>	
26.	Late Pre-Hispanic Polities of Coastal Ecuador	505
	<i>Colin McEwan and Florencio Delgado-Espinoza</i>	
27.	Late Pre-Hispanic Chiefdoms of Highland Ecuador	527
	<i>Tamara L. Bray</i>	
28.	The Formative Period in the Titicaca Basin	545
	<i>Christine A. Hastorf</i>	
29.	Paracas and Nasca: Regional Cultures on the South Coast of Peru	563
	<i>Donald A. Proulx</i>	
30.	Social Landscapes in Pre-Inca Northwestern Argentina	587
	<i>Juan B. Leoni and Félix A. Acuto</i>	

VI. DEMOGRAPHIC AND CULTURAL EXPANSIONS

31.	Early Cultural Complexity on the Coast of Peru.	607
	<i>Shelia Pozorski and Thomas Pozorski</i>	

32.	Andean Urbanism	633
	<i>Krzysztof Makowski</i>	
33.	The Tupi Expansion	659
	<i>Francisco Silva Noelli</i>	
34.	Life on the Move: Bioarchaeological Contributions to the Study of Migration and Diaspora Communities in the Andes	671
	<i>Tiffany A. Tung</i>	
35.	Chavín de Huántar and Its Sphere of Influence	681
	<i>Richard L. Burger</i>	

VII. STATES AND EMPIRES OF THE CENTRAL ANDES

36.	The Mochicas	707
	<i>Luis Jaime Castillo Butters and Santiago Uceda Castillo</i>	
37.	Wari and Tiwanaku: International Identities in the Central Andean Middle Horizon	731
	<i>William H. Isbell</i>	
38.	Between Horizons: Diverse Configurations of Society and Power in the Late Pre-Hispanic Central Andes	761
	<i>Jalh Dulanto</i>	
39.	The Chimú Empire	783
	<i>Jerry D. Moore and Carol J. Mackey</i>	
40.	The Inca Empire	809
	<i>R. Alan Covey</i>	
41.	The Inca Khipu: Knotted-Cord Record Keeping in the Andes	831
	<i>Gary Urton</i>	
42.	Experiencing Inca Domination in Northwestern Argentina and the Southern Andes	845
	<i>Félix A. Acuto</i>	

VIII. INTERACTIONS

43.	Inter-zonal Relationships in Ecuador	865
	<i>Francisco Valdez</i>	
44.	Cultural Boundaries and Crossings: Ecuador and Peru	889
	<i>Jean Guffroy</i>	
45.	Chachapoyas: Cultural Development at an Andean Cloud Forest Crossroads	903
	<i>Warren B. Church and Adriana von Hagen</i>	
46.	The Llanos de Mojos	927
	<i>John H. Walker</i>	
47.	Amazonian Mosaics: Identity, Interaction, and Integration in the Tropical Forest	941
	<i>Michael J. Heckenberger</i>	
48.	The Archaeology of Northern Chile	963
	<i>Mario A. Rivera</i>	
49.	Interaction and Social Fields in San Pedro de Atacama, Northern Chile.	979
	<i>Emily Stovel</i>	

IX. DEATH PRACTICES AND BELIEFS

50.	Prehistoric Funeral Practices in the Brazilian Amazon: The Maracá Urns.	1005
	<i>Vera Guapindaia</i>	
51.	Ancestor Images in the Andes	1027
	<i>George F. Lau</i>	
52.	Trophy Head-Taking and Human Sacrifice in Andean South America.	1047
	<i>John W. Verano</i>	

X. ETHICS AND PRACTICE IN SOUTH AMERICAN ARCHAEOLOGY

53.	Archaeology, Globalization and the Nation: Appropriating the Past in Ecuador	1063
	<i>O. Hugo Benavides</i>	
54.	Cultural Heritage Management in Peru: Current and Future Challenges	1073
	<i>Alvaro Higuera</i>	
55.	The Bennett Monolith: Archaeological Patrimony and Cultural Restitution in Bolivia.	1089
	<i>Isabel Scarborough</i>	
56.	Modernity and Politics in Colombian Archaeology	1103
	<i>Cristóbal Gnecco</i>	
57.	From the Erasure to the Rewriting of Indigenous Pasts: The Troubled Life of Archaeology in Uruguay	1115
	<i>Gustavo Verdesio</i>	
58.	Public Archaeology and Management of the Brazilian Archaeological-Cultural Heritage.	1127
	<i>Rossano Lopes Bastos and Pedro Paulo A. Funari</i>	

XI. CONCLUSION

59.	Conclusion.	1137
	<i>William H. Isbell</i>	
	Index	1159

Continental Introduction

HELAIN SILVERMAN

INTRODUCTION

Looking at a map (Figures 1.1, 1.2, 2.1), South America hangs heavily from the narrow, funnel-like Isthmus of Panama, which thus serves to delimit the continent on the north. Indeed, it was through Panama's densely vegetated tropical environment that the first settlers of the vacant (in human terms) continent had to pass, and adapt, more than ten thousand years ago (Ranere and Cooke 2003); maritime movement hugging the coastline was also a possibility (Fladmark 1979). Oceans border South America on all sides, further defining and, until the age of European exploration, largely isolating it from the rest of the world, save for intrepid indigenous navigators who trafficked luxury goods, including *Spondylus* shell, between Ecuador and the west coast of Mexico (Marcos 1977–78) and Panamanian chiefs who pursued esoteric knowledge in the more complex chiefdom societies of northern Colombia (Helms 1976). But this hyper-geographical continental essence—or South America as a natural unit—is belied by what may have been the world's greatest linguistic, cultural, and botanical diversity. This extraordinary heterogeneity is the challenge that faced Julian H. Steward (Figure 1.3) in the early 1940s as he sought to devise a framework with which to organize the approximately two hundred chapters commissioned for the six-volume *Handbook of South American Indians* (HSAI; the seventh volume is the index) from an international cast of more than ninety leading ethnographers, archaeologists, physical anthropologists, ethnologists, linguists, cultural geographers and art historians.

The HSAI project came about through two initiatives. As recounted in the subsequently published *Native Peoples of South America* (Steward and Faron 1959), “During the 1930s, a group of leading anthropologists [sought to unite disparate data about the continent] through the preparation of a *Handbook of South American Indians*. The *Handbook* was to assemble all available information on South American physical anthropology, linguistics, archaeology, and ethnology so as to provide the general student with a convenient summary of the salient facts and the scholar with a springboard for future research”

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008



Figure 1.1. Map of South America: countries. (Drawn by Steven J. Holland)



Figure 1.2. Map of South America: major rivers. (Drawn by Steven J. Holland)

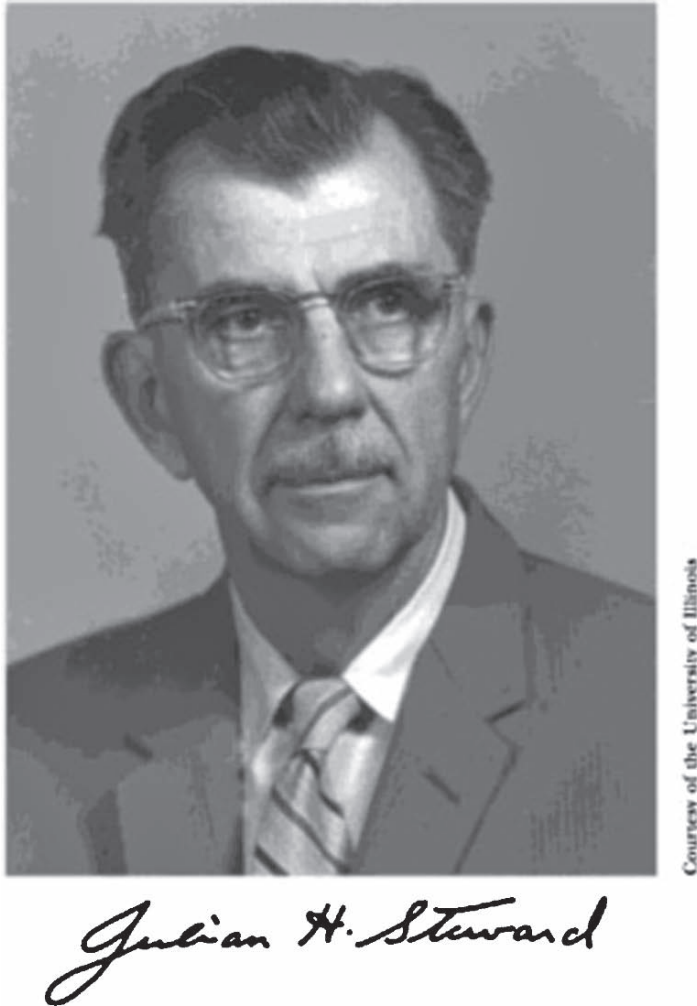


Figure 1.3. Julian H. Steward (courtesy: Department of Anthropology, University of Illinois at Urbana-Champaign).

(Steward and Faron 1959: v). Steward's employment as an anthropologist (1935–1946) in the Bureau of American Ethnology (BAE) of the Smithsonian Institution facilitated this goal. In 1939 the BAE agreed to undertake the task “in collaboration with the Department of State, as one of the projects under the broad program of ‘Cooperation with the American Republics’” (Steward and Faron 1959: v). Work on the *HSAI* began in 1940 and was completed in 1945, but publication was not until 1950.

Steward's work was related to the U.S. government's concern during World War II with defense, national security, language training, and the need to acquire information about hostile/potentially hostile as well as vulnerable people. As specifically concerns Latin America, Steward (1950: xi) explained, “With the growing threat of war and a general recognition of the need for greater Hemisphere understanding and solidarity, attention was

focused on Latin America. Latin American training centers were created, interdisciplinary research was planned, and the American Council of Learned Societies, National Research Council, and Social Science Research Council set up a Joint Committee on Latin American Studies which was instrumental in coordinating a great variety of work.” A 1943 Social Science Research Council report (cited by the Ford Foundation 1999: viii–ix) indicates a concomitant concern “that our citizens must know other lands and appreciate their people, cultures, and institutions” [Note 1]. The *HSAI* sought to fulfill that mission as Alexander Wetmore, then Acting Secretary of the Smithsonian Institution, expressed in his 1944 foreword to the first volume: “The present monumental work is ideally suited to carrying out the purpose of the Smithsonian Institution, ‘the increase and diffusion of knowledge’ as well as that of the Bureau of American Ethnology, the promotion of ‘ethnological studies among the American Indians.’”

Steward (1946a: 4) acknowledges that he created the themes of the first four volumes based on Cooper’s (1941) fourfold culture division of South America. These culture areas were: “Marginal hunting and gathering tribes of Eastern Brazil, the Gran Chaco, the Pampa, Patagonia, and Tierra del Fuego; (2) the Andean civilizations; (3) the tribes of the Tropical Forests and Savannas; and (4) the Circum-Caribbean cultures including that portion of Central America which was strongly influenced by South America” (Steward 1946a: 4) and including the Caribbean Islands, which were correctly understood as a cultural extension of northern South America (Steward 1948b: 23) [Note 2].

In addition to the adoption of Cooper’s (1941) culture area scheme, the organization of the *HSAI* appears to have been profoundly informed by Steward’s previous research among native people (e.g., Steward 1938) and with archaeological materials (e.g., Steward 1942; Steward and Setzler 1938), and his interest in the cultural content of societies and their change over time. During the *HSAI*’s gestation in the 1940s Steward began to develop a coherent evolutionary framework that linked sociopolitical complexity to environmental and cultural ecological factors. This interrelationship was first expressed in the organization of the *HSAI* (see especially Steward 1949a; see discussion below) and ultimately was fully formulated in a series of subsequent papers (Steward 1949b, 1951, 1953, 1955d, 1956, 1960a, b, c, 1970).

In this introduction to the *Handbook of South American Archaeology (HSAA)*, I consider Steward’s organization of the *HSAI* and some of the continental schemes that followed it. I do not discuss exclusively ethnographic volumes (e.g., Gross 1973; Lyons 1974). I conclude with comments on a new critical scholarship for supra-area archaeology.

FROM CULTURE AREA TO CULTURAL TYPE TO CROSS-CULTURAL TYPE

Europeans faced a bewildering diversity of South American people during their age of discovery, in some cases lasting into the twentieth century for the most remote groups. In the second half of the nineteenth century armchair scholars explained this diversity in terms of evolutionary schemes that grouped together, in broad evolutionary stages, cultures with similar principles of kinship, economic production or political authority. Anthropologists in the United States responded to the need to organize their ethnographic data on hundreds of Native American cultures in some meaningful way by applying the “culture area” concept (e.g., Kroeber 1939; Wissler 1917, 1938), which sprang from the *kulturkreise* (literally,

cultural circles) school of the German geographer Friedrich Ratzel and the German anthropologists Leo Frobenius and Fritz Graebner. The culture area concept benefited from ideas about cultural diffusion popular in European geography (diffusion of cultural traits from a few dominant cultural hearths). The culture area concept posited that peoples living in proximity to one another and inhabiting more or less similar environments tended to share many aspects of culture in common (such as subsistence patterns, crafts, religion). A key characteristic of the culture area formulation was its reliance on “facts” (Steward 1955d: 80), which were codified as trait lists (“culture content and ... features which distinguish *culture areas* from one another” [Steward 1955d: 81, emphasis in original]). The American continents, and other parts of the world, were divided into culture areas, each one characterized by a particular variety of spatially and historically related cultures.

Steward’s conceptual innovation was the “cultural type,” a critique of the problems inherent to culture areas, such as their lack of consideration of temporality, change, and incongruence between shared features and structural pattern (Steward 1955d: 82–83). The cultural type “consists of core features that, first, are determined by cross-cultural regularities of cultural ecological adaptation and second represent a similar level of socio-cultural integration” (Steward 1955d: 89). The foundation for Steward’s formulation of types is the “culture core,” or “cultural core”—“the constellation of features which are most closely related to subsistence activities and economic arrangements. The core includes such social, political, and religious patterns that are empirically determined to be closely connected with these arrangements. Innumerable other features may have great potential variability because they are less strongly tied to the core. These latter, or secondary features, are determined to a greater extent by purely cultural-historical factors—by random innovations or by diffusion—and they give the appearance of outward distinctiveness to cultures with similar cores” (Steward 1972: 37). In other words, the cultural core is the “functional interdependency of features in a structural relationship” (Steward 1955d: 94).

The core lies at the heart of Steward’s fourfold classification of culture areas (Steward 1955d: 94). Steward’s 1946 through 1948 fourfold classification was as follows.

Volume I of the *HSAI* was devoted to “marginal tribes.” These were hunters and gatherers living in mobile bands, but including fishermen as well as hunter-gatherers who practiced some cultivation and were, consequently, sedentary for at least part of the year (Steward 1946a).

Volume II described the “Andean civilizations” (Steward 1946b). The title alone characterized an evolutionary stage of cultural development. Wendell Bennett (1946: 1) was clear in his introductory paper in Volume II: “At the time of the Spanish Conquest, the three outstanding Highland cultures were those of the Chibcha, the Inca, and the Araucanians. Of these three, that of the Inca is best known and was the most advanced in cultural achievement.” “Highland” was synonymous with Andean, so in South America, only Andean cultures were “civilized,” and the most privileged were the “Central” Andeans, or the Incas and their ancestors, conceptualized as donors to simpler South American culture areas or culture types (e.g., Steward 1949a). Scholars still follow Bennett in dividing the Andean cultures into three great geographical regions and their associated culture types: North Andes, Central Andes, South Andes (e.g., Lumbreras 1981).

The “Tropical Forest Tribes” (Steward 1948a) were brought together in Volume III. The “core diagnostic features” of these people were generally characterized as tropical root crop (especially manioc) farmers who used effective river craft for transportation, hammocks as beds, and made pottery (Lowie 1948: 1). They were also defined by what

they lacked: “architectural and metallurgical refinements,” and by what they superseded: “hunting-gathering economy [and] moderate horticulture.”

Volume IV (Steward 1948b) embraced the “circum-Caribbean tribes” who were characterized as intensive farmers residing in large villages, sometimes organized into federations by chiefs and paramount chiefs. Interestingly, Steward included chapters on Central America (Honduras, Costa Rica, Nicaragua, Panama) as well as the West Indies. The latter is understandable since the Antilles were colonized by South Americans (already recognized by Rouse 1948a, b in his contributions to this volume). Steward included lower Central America—what he (Steward 1948b: 2) referred to as “south of the Maya frontier in Honduras”—because these societies exhibited, by Steward’s criteria, “basic circum-Caribbean culture” (defined in Steward 1948c). Cultural patterns trumped contemporary cartographic nomenclature.

Steward’s (1949a) “interpretative summary” of South America in Volume V was built upon the new information about archaeology, history and ethnography presented in the preceding four volumes of the *HSAL*. Steward acknowledged that “in retrospect it is evident that many tribes were improperly classified [in the preceding four volumes] ... more or less on the basis of impressions ... [using] principally the general element content [read: trait list] of the cultures rather than a systematic comparison of the patterns. Special weight was accorded one or another feature in each case” (Steward 1949a: 669, 671). Therefore, Steward’s revision relies primarily upon sociopolitical and religious patterns. The new fourfold classification was “Marginal people,” “Tropical Forest and Southern Andean people,” “Sub-Andean [Northern Andes] and Circum-Caribbean people” and “Central Andean people.”

Theory and practice shaped one another in the foundation of modern South American anthropology. Steward’s Volume V essay adumbrates his immediately subsequent work on multi-linear evolution and levels of socio-cultural integration. He writes, “Culture elements are accorded secondary importance because too many of them are independent variables. Their distributions were dissonant with those of the sociopolitical and religious patterns, and they occurred in quite different patterns. They were the building materials of culture and did not greatly affect the architecture. ... A classification based on culture elements would not at all correspond to one based on sociopolitical patterns (Steward 1949a: 671). ... The patterns chosen herein as the basis for classification are those that integrate the institutions of the sociopolitical unit. ... This fourfold classification has developmental implications in that some institutions and practices were necessarily antecedent to others, but it is not a unilinear scheme” (Steward 1949a: 674).

It is fascinating to compare Steward’s (1949a) “interpretative summary” with “Development of Complex Societies: Cultural Causality and Law: A Trial Formulation of the Development of Early Civilizations,” which was published the same year in *American Anthropologist* (reprinted in Steward 1955a), and with a series of explicitly evolutionary treatises that followed (Steward 1951, 1953, 1956, 1960a, b, c, 1970). It is by reading these later works that one sees the theoretical fruition of the massive data base upon which Steward drew, including South America, to reason out his fully mature multi-linear evolution, which he defined as a concern with cause-and-effect relationships having limited cross-cultural occurrence and proceeding from the particular to the general. “It conceives culture as the concrete forms of behavior that characterize societies of different times and places. It therefore seeks explanations of why particular cultures develop” (Steward 1960a: 1).

In the 1960s Elman Service (1962) and Morton Fried (1967) presented explicit evolutionary schemes, classifying pre-modern human societies into four successive stages. Service proposed a sequence of stages starting with “band” organization, followed by

“tribes,” then “chiefdoms,” and finally “state” government. Fried proposed a sequence from “egalitarian” society, to “rank” society, to “stratified” society, and then “state” organization. It is important to recognize that prior to their work Steward was elaborating a different evolutionary scheme, one he manifested to be without unilinear implications and that transcended universal claims (see Steward 1955c).

With the establishment of cultural types whose constituent members shared a fundamental similarity of core features Steward was able to theorize about causal processes. These cultural types could be compared and arranged in terms of their complexity, expressing an implicit theory of cultural evolution that organized sub-continental cultural regions. Now Steward (1955d: 94) explicitly proposed a “developmental typology.” He specifically advocated globally comparative attention to the “cross-cultural type,” which takes into account local adaptation, historical development, level of socio-cultural integration, “uniformities” (similarities) of form and content within an area or co-tradition (*sensu* Bennett 1948), and “regularities” (similarities recurring in historically separate areas or traditions) (Steward 1955d: 87–88). His cross-cultural types were “*Incipient Farmers, Formative, Regional Florescent, and Empire and Conquest*,” which “constitute a development typology” applicable to the New World and Old World (Steward 1955d: 94, italics in original). At a 1947 conference, while still editing the *HSAI* and prior to writing his “interpretative summary” for Volume V, Steward was already thinking along these evolutionary lines. Thus, in the then state-of-the-art *A Reappraisal of Peruvian Archaeology* (Bennett 1948), Steward proposed a “classification of American high cultures” that simultaneously considered the “regularities” manifest in “culture sequences,” deliberately moving beyond “attention on art styles [that] stressed the distinctiveness of each local sequence” (Steward 1948d: 103). He asked questions such as: “Does agriculture everywhere precede craft development? Were these regional florescent periods times of expanding population? Did warfare become a major factor after the population had reach a maximum?” (Steward 1948d: 103). Such questions transcended culture history to address cross-cultural issues of process, change, and cultural evolution.

It is clear that because of the mission of the *HSAI* —to present categorized data about the hundreds of ancient and ethnographic South American societies—theory and interpretation were kept to minimum by Steward: “The *Handbook* is essentially descriptive” (Steward and Faron 1959: vi). In fact, in terms of the wartime context in which the *HSAI* was written and the role of area studies in the war effort, Steward (1950: xii) explicitly states, “the United States found itself in the war. The need for knowledge, not theory was paramount.” Steward largely restrained himself in the Volume V essay. Perhaps some degree of theoretical dissatisfaction explains why Steward rarely referred to the *HSAI* in his later papers when discussing cultural evolutionary typology and process (i.e., multi-linear evolution), even though the *HSAI* clearly recognized differences in level of socio-cultural integration (e.g., tribes in most of South America, civilization in the Central Andes). The only exception is Steward’s revision of the *HSAI* in *Native Peoples of South America* (Steward and Faron 1959), where he precisely indicates updates in the latter.

In his most recent work Steward (1970) clearly contemplated cultural change over time—cultural evolution—which involved what is actually a highly systemic model of interdigitated and mutually informing factors of environment, technology, and social creativity in deterministic and undeterministic elements with varying degrees of causality—a formulation that can be read as consilient with the processual archaeology and systems theory of that time but which Steward may not have been reading. He emphasized here the importance of local conditions (naturally occurring resources, environment, geology, geography, etc.) and their causal impact on social structure (the nature of exploitative activities

required for utilizing each resource). But Steward's theory is not simple determinism. His views are moderated by his sense that the particular social as well as natural environment in which technologies are used is important, that preconditions must be taken into account, that "causes are effective through generating processes of change, and not through a simple, direct cause-and-effect relationship between a cultural factor and its consequences" (Steward 1970: 200), that "cultural evolution follows an undetermined number of different lines" (i.e., multi-linear evolution; Steward 1970: 199), and that cultural evolution is "qualitative transformations in substantive social phenomena that occur through internal processes" (i.e., not diffusion; Steward 1970: 219). Steward's culture core, cultural type, and level of socio-cultural integration were the basis of his overarching framework for discovering cross-cultural regularities or general laws. That task was undertaken largely outside the *HSAI* but was influenced by it.

BEFORE STEWARD

It is also important to indicate the classificatory efforts of some of Steward's predecessors. In 1912 the British scholar Thomas A. Joyce published *South American Archaeology* whose lengthy subtitle emphasized the volume's "special reference to the early history of Peru," but which did cover most of the entire continent and recognized the Isthmus of Panama as "connected culturally to Colombia," and the Antilles as formerly inhabited by "an early population who seem to have been a branch of the South American Arawak" (Joyce 1912: 7).

Although Edgar Lee Hewett (1939) emphasized ancient "Andean life" because of his interest in "civilization," his foreword to his book, *Ancient Andean Life*, clearly indicates both intellectual engagement with the archaeology of the entire continent and an eschewal of culture area constraints: "No attempt is made at sharp definition of the frontiers of these high Andean cultures... Colombia, the Isthmian region, and the lower Central American states abound in remains of transitional cultures lying between the Mexican, Mayan and matured Andean. The southern limits of what I am calling Andean [are] the Lake Titicaca basin. Numerous marginal extensions are found" (Hewett 1939: xviii–xix). Indeed his first chapter considers the "stage setting" (geographical and climatological parameters) of human history worldwide.

Addressing both prehistory and ethnography, in 1942 Paul Radin published *Indians of South America*, a slim but ambitious volume that sought to describe aboriginal South America in terms of "distinctive and specific traits; ... relationships, if any, these cultures bear to one another;... their connections with the cultures of Central America and North America" (Radin 1942: xii). Of particular note is Radin's interest in Caribbean Arawak and his contention that they colonized rather than immigrated from South America. His organizational scheme also recognized "tribes of the Amazon basin," "Ge tribes of eastern Brazil," "tribes of the Chaco," "horsemen of the Chaco" "the Fuegians," "the fringe of the great civilizations" and "the great civilizations."

STEWARD AND FARON

A decade after publication of the final data volume of the *HSAI* Steward brought out *Native Peoples of South America (NPSA)* with his colleague, Louis Faron, also at the University

of Illinois in Urbana-Champaign. The goal of *NPSA* was to synthesize the six massive volumes of the *HSAI* into one slim textbook (“a general summary”) and to enable Steward to theorize as he had not been able to do in the *HSAI* because of the nature of that publication. He used *NPSA* as the opportunity to create “an interpretative work, written according to a general theoretical point of view” (Steward and Faron 1959: vi). In addition, *NPSA* brought the *HSAI* up to date because much research was conducted since 1945.

NPSA offered “an interpretation of how these cultures developed ... an interpretation of cultural development, beginning with very primitive man, as exemplified by the various nomadic hunters and gatherers, passing through various types of communities and states based upon agriculture, and culminating in the Central Andes in fairly sophisticated militaristic empires supported by irrigation farming” (Steward and Faron 1959: vi). As he had been arguing for the past decade, Steward here emphasized his cross-cultural goal: “We hope that the insights and understandings of human development provided by these chapters will throw light on human history in other parts of the world” (Steward and Faron 1959: vi).

It is noteworthy that *NPSA* explicitly refers to “chiefdoms,” a term not used by Steward in his “interpretative summary” of 1949 (Steward 1949a); the *HSAI*’s Circum-Caribbean tribes are chiefdoms in 1959. Chiefdom is “a culture type characterized by small, class-structured states” (Steward and Faron 1959: 177). In *NPSA* chiefdoms may be unmodified (no preceding adjective), “warring,” or “theocratic,” depending on the region in which they occur. “Civilization” encompasses “theocratic states,” “regional florescent states,” and “prehistoric empires”. Civilization occurred only in the Central Andes where Andean states and empires relied on irrigation agriculture (Steward and Faron 1959: 177); the significance of irrigation agriculture was the “intercommunity cooperation” required (Steward and Faron 1959: 452). The *HSAI* label “tribe” is abandoned in favor of “farmers and pastoralists” and “farm villages” for the more complex, and “nomadic hunters and gatherers” for the less complex of those social formations not at the chiefdom level of sociocultural integration. There appears to be more of a concern with the interlinking ensemble of political, social, economic, environmental and technical factors in creating the *NPSA* organizational categories than was evident in the overall organization of the *HSAI*. I do not know how much of these conceptual changes are due to Faron.

NPSA sits at a theoretical junction. Steward’s descriptive vocabulary eschews the categorical evolutionary terminology that would soon enter the anthropological lexicon. Steward has a clear developmental sense, but the very fuzziness of his descriptors—e.g., chiefdoms are small, class-structured states—is an oxymoron to subsequent evolutionists such as Service (1962: 163–164; note that the volume is dedicated to Steward [and to Leslie White]) and Fried (1967: 227–240)—while permitting more play in comparing societies than the necessarily unsuccessful totalizing of rigid classificatory schemes, which can never accommodate the full range of variability. Interestingly, almost thirty years later, Johnson and Earle (1987) abandoned the still dominant band-tribe-chiefdom-state scheme for one resembling Steward and Faron’s *NPSA* framework (but which they do not cite), with the addition of specific attention to individual active agents.

WILLEY

Gordon Willey (1971) clearly explained the goals of his two-volume *An Introduction to American Archaeology* in the introduction to each volume, of which *Volume Two: South America* concerns us here. The volume “is devoted to the pre-Columbian culture history of

South America... The objectives are ... to relate the story of the native American prehistoric past from earliest time to the arrival of the Europeans... the intent is to appraise the archaeological cultures of the New World; to define what we believe to be the principal lines of history—the major cultural traditions; and to plot out the development of these lines in their geographical settings and their chronological dimensions” (Willey 1971: 2). As a single-authored volume, Willey was able to maintain this narrative and the make the treatment of each of his major cultural traditions comparable.

Willey’s “major cultural traditions” are Peru, South Andes, Intermediate, South American Tropical Lowlands, and Eastern and Southern South America. Within these are the culture areas which correspond to geographical criteria so as to provide “an orderly geographic frame of reference... to give the reader some idea of comparable spatial scale... from one part of the Americas to another” (Willey 1971: 3): Peru/Central Andean (co-terminous with the major cultural tradition), South Andes (co-terminous with the major cultural tradition), Intermediate, (North Andes and lower Central America and co-terminous with the major cultural tradition), Caribbean and Amazonian (as separate culture areas but together constituting the South American Tropical Lowlands major cultural tradition), and finally the culture areas comprising Eastern and Southern South America: East Brazil, Chacoan, Pampean and Fuegian areas. These culture areas are said to have “embraced significant cultural unity through significant spans of time” (Willey 1971: 4). Nevertheless, Willey readily recognizes that the “aboriginal cultures of the past did not adhere to strict geographic boundaries [and] there was considerable shifting of regional and subarea borders through time within culture areas [and] even the boundaries of the major culture areas changed over the millennia” (Willey 1971: 3). He acknowledges that his scheme is a compromise (Willey 1971: 4).

RIBEIRO

South American scholars also have cast a continental eye on South America’s ancient and ethnographic societies. Darcy Ribeiro is particularly interesting because of his concerns with the causes of Latin America’s uneven development in comparison to the wealth and dominance of North America (issues of “backwardness” and “progress.”) He easily transits between the prehistoric, colonial, and contemporary periods, though emphasizing the latter (Ribeiro 1968, 1970, 1972). In *The Americas and Civilization* Ribeiro (1972) divides the continent into “The Andeans,” “The Brazilians,” “The Gran-Colombians,” “The Antilleans,” “The Chileans,” and “The River Plate Peoples.” A Brazilian, Ribeiro’s evolutionary approach must be understood from his stated position as a “Third World” scholar; Ribeiro is also interesting because he directly engages Steward theoretically, most clearly in *The Civilizational Process* (Ribeiro 1968).

JENNINGS

The map on the cover of Jennings’ (1978) textbook vividly reveals his definition of South America, which is everything except North America (i.e., down to the northern edge of the Valley of Mexico), as well as Cuba, Jamaica and Hispaniola (the other islands of the Caribbean are not indicated, presumably because too small). It is a radically different scheme than that of the other authors discussed in this chapter since Jennings includes archaeological

Mesoamerica. South America itself is divided into North Andes, Central Andes, South Andes, and Lowland South America and Antilles. Also, interestingly, he offers no commentary about this edited volume. It is comprised entirely by chapters written by other scholars. What also makes *Ancient South Americans* different from the other volumes is that Jennings includes a chapter on pre-Columbian transoceanic contacts (Jett 1978). Steward considered diffusion in the *HSAI*, critically and correctly arguing, “To derive phenomena... from similarly tagged Old World phenomena would be to ignore the realities of culture” (Steward 1949a:744) [Note 3]. He also demanded that individual traits be assessed chronologically and argued that notwithstanding the possibility of fortuitous landings of “individual boatloads of voyagers in the course of settlement of the Polynesian Islands during the Christian Era,” diffusion did not impact “the shores of America in the earlier millennia, when the American civilizations were taking form” (Steward 1949a: 744). Jett (1978) engages in a far more wide-ranging discussion and with some degree of tolerance for trans-oceanic scenarios involving Malaysia, China, and possibly the Greco-Roman Mediterranean.

MEGGERS

Meggers (1992) does not achieve full continental coverage in *Prehistoria Sudamericana, Nuevas Perspectivas*. Rather, contributions are grouped by historical, theoretical, biological and ethnographic perspectives on the greater Amazonian lowlands with a smattering of specific case studies from the Andes. She geographically organizes her volume in three major areas: Tierras Bajas, La Costa Norte y Las Antillas [thus, the inclusion of the Antilles in South America], and La Región Andina.

BRUHNS

Bruhns' (1994) survey of ancient South America is an admirable culture historical synthesis that eschews area-by-area developmental trajectories in favor of synchronic comparisons across the continent. South America is defined geographically; thus, the Antilles are not included despite their cultural relationship to Arawakan Amazonia. The treatment of the Andes (especially Peru and Ecuador) is the most complete as this is the author's expertise and Peru is where the most fieldwork has been conducted, but the attempt to present a range of ancient societies at particular moments of time is fulfilled.

The volume's driving temporal frames are not arbitrary but, rather, emanate from the Peruvian developmental and absolute chronology and can be particular to the Central Andes alone. Thus, “Cultural intensification in the Andes: 3500–2000 BC” largely corresponds to Peru's Late Preceramic/Late Archaic/Preceramic VI period; “The first civilizations: 2000–200 BC” corresponds to Peru's Initial Period and Early Horizon (the Chavin phenomenon); “Regional diversification and development: 200 BC–AD 600” corresponds to Peru's Early Intermediate Period and Ecuador's Regional Developmental Period; “Militaristic and religious movements in the Andes: AD 500–900” specifically refers to Wari and Tiwanaku; and “Kingdoms, chiefdoms, and empires: AD 900–1438” is driven by Peru's Late Intermediate Period. In contrast, “The first peoples: 12,000–6000 BC” is applicable to the entire continent without regional preference. Of course, herein lies the great question so many scholars have tried to answer: *why* did the dramatic divergence from an initially similar start condition occur such that by 3000 BC the Central Andes were on a radically

different trajectory from the rest of the continent? The issue of *how* has been and is being delineated by the past sixty years of systematic fieldwork.

In Bruhns' attempt to be comparative, some conceptual looseness occurs. It is anathema for Andeanists (I think) to put the extraordinary Initial Period and Early Horizon civic-ceremonial centers of the Central Andes in the same chapter on "The first civilizations" as, for instance, contemporary developments along the Orinoco (Bruhns 1994: 126–155). Similarly, most Andeanists would regard the great Late Preceramic/Late Archaic centers as qualitatively more complex than the "cultural intensifications" occurring in Ecuador at this time (see Bruhns 1994: 97–115), especially in light of the dramatic data on the Norte Chico (Peru's north-central coast) that has been generated since publication of the Bruhns volume, both in terms of the even greater monumentality present and the more agricultural basis of the diet (e.g., Chapter 31 in this volume; Shady 2006; Haas and Creamer 2004). On the other hand, the concept of "regional diversification" (Bruhns 1994: 185–222) permits very meaningful comparisons among the less complex societies of the Central Andes (such as Paracas, Nasca, Recuay) and the complex social formations of the North Andes (such as Jama-Coaque, Bahia, Tolita, San Agustín, Quimbaya), regardless of the contemporaneities involved or not. It is a stretch—to say the least—to put the urban, militarily and religion-based expansionist Wari and Tiwanaku empires in the same chapter as Tupi-Guarani (see Chapter 33 in this volume) or Colombian societies (Bruhns 1994: 239–277); these are not comparable phenomena. On the other hand, it is worthwhile to compare the range of complex societies of South America in the last five hundred years before the Spanish conquest (Bruhns 1994: 290–330), especially if one eliminates the Chimu and Inca empires such that the variations can be usefully analyzed, if not explained. For instance, with enough data it would be fascinating to compare Manteño and Chincha.

WILSON

Wilson (1999) restricts himself specifically to the South American continent with whose archaeological and ethnographic data he develops a "systems hierarchical evolutionary paradigm" that "follows the theoretical lead of Julian Steward and his adherents in arguing that cultures—ancient or modern—must be understood as much by reference to the physical environment... as by reference to their many sociocultural features [social organization, rituals, ideologies]" (Wilson 1999: xiv). Wilson largely follows the band-tribe (here called villages)-chiefdom-state evolutionary scheme (in which he may be seen to be a product of his training at the University of Michigan). The interdigitation of archaeological and ethnographic data is very interesting for "marginal" areas such as southernmost Chile (comparisons of Paleoindians with the Ona and Yahgun) and the villages and chiefdoms of Colombia (comparisons of Valdivia and Tairona with the Kogi). But no archaeological examples are provided for Amazonia and most of the rest of the continent, save the Central Andes.

Wilson's (1999: 428) fundamental position is "no state, however large and complex it may be, is freed of a concern about the environment and the subsistence system that support it." This is certainly true. But with its flow charts, quantifying tables, and persistent eco-environmental evolutionary discourse, *Indigenous South Americans* appears heavy-handed today. And yet, it is no more so than the postprocessualist treatises with their particular brand of unrelenting discourse about practice, agency, materiality, power, identity, resistance, etc. Wilson simply takes a position that today is largely out of favor, not the least because the macro problem under his lens (evolution of complex societies) itself has been pretty much

declared unmeritorious of attention by the other camp which is focused on cumulative micro-change. Wilson is dealing with “*big boxes*” (1999: 440, emphasis in the original) in which “cosmology, symbols, rituals, and so on—indeed, anything of a higher-order nature” is accommodated but not privileged. It’s the opposite way of seeing the world in terms of where dominant academic archaeology is today. This is not to say that Wilson is wrong; rather temperance on both sides would likely yield a more satisfactory holistic result.

THE CAMBRIDGE HISTORY

Volume III Part 1 of *The Cambridge History of the Native Peoples of the Americas* (1999) concerns South America, from prehistoric times through the early colonial period. In terms of archaeology, the contributed chapters are organized chronologically for the Andes and by area for the other regions (Caribbean, Southern Cone), reflecting the greater amount of data available for the Andes. Amazonia is hidden within a fine chapter by Anna Roosevelt called “The Maritime, Highland, Forest Dynamic and the Origins of Complex Culture” that also engages the Central Andes. The late pre-Hispanic chiefdoms outside the Central Andes receive their own treatment in a separate chapter. Again we see a continental survey of the earliest inhabitants followed by the other chapters.

The Cambridge History admirably achieves its goal of being “an idea-oriented history” rather than a handbook (Salomon and Schwartz 1999: 1). Its archaeological chapters are outstanding essays that summarize and stimulate.

BEYOND CULTURE AREAS: AREA STUDIES AND ARCHAEOLOGY

The *HSAI*, which was carried out as one of many area research programs by U.S. government agencies, may well be regarded as a precursor to post-WWII area studies, which developed as a coherent intellectual platform immediately following the end of that war. “Area studies from the view of the social sciences [was conceived to] extend the fund of knowledge respecting the peoples and areas of the world, stimulate interdisciplinary cooperation in research and integration of the findings of research, increase cross-cultural understanding, and provide data and experience tending toward universalization of the social sciences” (Webbink 1950: vii). Steward was a major voice in this development in terms of the *HSAI*, his influence on the Virú Valley Project (see Willey 1953: xvii–xx), and his other writings. Steward’s 1950 *Area Research* was commissioned and published by the Social Science Research Council (SSRC) whose Committee on World Area Research met for the first time in the fall of 1946. SSRC recognized the “heterogeneous” and “unorganized” nature of earlier areal research and felt compelled to intervene because of an “impending expansion of [university] programs for training area specialists [that] would rest upon insecure foundations [unless] someone attempts to clarify the precise objectives which should guide area research” (Webbink 1950: vii). In 1946, 1947 and 1948 SSRC held conferences and published surveys about area studies. Steward’s 1950 appraisal addressed these earlier formulations while expressing his own unique views as an anthropologist (area studies engaged all of the social sciences) and theorist. The positive impact of the end of WWII on the intellectual purview of area studies was recognized by Steward: “The practical demand that area research supplies information to guide our foreign relations is perhaps as great

now as it was during the war; but the sense of urgency has diminished sufficiently to enable scholars once again to give thought to the theoretical and methodological implications of their research" (1950: xii–xiii).

Some scholars have argued that traditional area studies were "simply empirical, inductive research about other cultures ... driven by knowledge of the culture and a proficiency in the language ... trying to understand a culture that is alien to you by personally, inductively getting inside of it ... such research was not driven by a theoretical issue at first" (JPRI 2005). To a significant degree, the *HSAI* was not conceived as a theoretical work. And yet, as discussed above, it appears to have been the springboard to Steward's formulation of multi-linear evolution as a methodology for studying culture change.

The culture area focus of the last (twentieth) century's archaeology can be profitably reconfigured into a critical area studies approach such as that proposed by Isbell and Silverman (2002a, b, 2006a, b) for the Central Andes, informed by current thinking on area studies among anthropologists (Orlove 2002; Slocum and Thomas 2003), historians (e.g., Ludden 1999, 2000), and political scientists (Chalmers Johnson in JPRI 2005). Today's avant garde proponents of area studies emphasize the need for cross-cultural perspectives (passionately advocated by Steward decades earlier) and attention to gender, race, economic inequities, power, social justice, identities, colonialism, diasporas, etc., all in the context of globalization. This is not to say that area studies should abandon an historic interest in language, history, culture and society and emphasis on areal expertise—only that the concerns of area studies must expand and more directly and positively engage the real world. As Orlove (2002: 350) recently wrote, "Area studies permit a certain kind of comparison that offers suggestive ideas ... they offer distinctive perspectives on issues of current interest to anthropology. Topics such as cultural transmission, cultural boundaries, and the encounters of colonizers and the colonized can be studied without reference to area studies, but area studies provide large spatial and temporal scales on which these issues can be examined." At the same time, area studies can continue to recognize the importance of the local contexts constituting the area, especially in terms of local-global interfaces and interactions. Steward, who applied multi-linear evolution to the study of culture change in contemporary societies such as Puerto Rico, certainly would have agreed with the call for transareal comparisons deployed to resolve major problems (see, e.g., Steward 1955e). Indeed, almost fifty years earlier, Steward (1950: xv) wrote "an area approach must spring from special interests, problems, or theories." The final chapter of his *Area Research* explicitly advocated a problem approach to area studies so as to attend society cross-culturally.

One of the most incisive aspects of Steward's theoretical approach to area studies was his early, unrecognized formulation of what is today called historical contingency ("a social arena influenced by past events and contemporary power relations, and with a view toward the future"—Thomas 2001) and hybridity (*sensu* Bhabha 1994). These unnamed concepts figure in his discussion of the evolution of sociocultural systems and levels of integration, which themselves form the basis for cross-cultural comparison. Steward (1950: 106) spoke of the "various kinds of societies whose structure and function are determined by the cultural heritage of the world areas in which they exist"—i.e., historical contingency. He went on to criticize the cultural "survival" view that contemporary societies of Latin America, such as Peru, are "simply a mechanical mixture of elements and patterns of aboriginal Indian, old Spanish, and contemporary Euro-American culture" (Steward 1950: 107), saying instead that "The older cultural elements, communities, and institutions have undergone qualitative changes, brought about by the functional dependence upon a

new kind of whole. A continuum of development is recognizable in Peru's history, but it consists of successive levels—the lines may be drawn at various points—that are parts of a whole which is qualitatively new as well as quantitatively more complex" (Steward 1950: 108)—i.e., hybridity in Bhabha's (1994) sense (former and current do not produce a mixture of old and new as in $A+B=AB$ but, rather, a new configuration, $A+B=C$).

Specifically, for archaeology as part of anthropology, fundamental empirical (culture history) and processual (evolutionary) work is and always will be necessary. In addition, postprocessual concerns with practice, agency and materiality (PAM: see discussion in Isbell and Silverman 2002b) applied diachronically to many of the same issues noted by Orlove (2002) and others (ideology, gender, social inequality, elite networks, identities, cultural traditions and transmissions, center-periphery articulations, resistance and negotiation, colonization, migration, diasporas, etc.) as well as heightened ethical awareness of the historical and current contexts of research are leading archaeologists into evermore social worlds, including community engagement and political awareness if not outright activism. Of particular interest, however, is Politis' (2003: 253) observation that not all of these issues resonate in all countries. He argues that issues concerning ethnicity and indigenous rights are immediately salient, whereas the study of gender has been considered less relevant.

With even more political bite Patterson (1996: 503) argues that "terms that refer primarily to geographical proximity—such as Latin America"—mask diversity (differences from one country to another) within the region and inhibit comparisons with nation-states in other parts of the world. Politis (2003: 245) similarly denies the existence of a Latin American archaeology stating "Such an entity does not exist," for there are many historical backgrounds (both nationally specific and shared experiences), theoretical approaches, favored methodologies and research interests and they do not configure into a monolithic archaeology, a point also cogently made by Dillehay (in press).

Although most of the authors in the *HSAA* are concerned with particular "archaeological cultures" and local specificities—as with Steward's *HSAI* this is the result of the mission of the publication project—one of most interesting aspects revealed in various *HSAA* case studies is how transareally engaged so many *ancient* societies were. Thus, far from the rigid culture areas of early formulations, here we see that ancient societies were not stable in fixed territories. Rather, where research is sufficiently advanced, the data often indicate complex and fluid cultural, linguistic and geographical configurations and, within them, equally dynamic identities. Of particular interest—and shared with contemporary area studies—is the problem of how identities and cultures formed and re-formed, as understood in their historical, social and cultural dimensions. Such is the case, for instance, with the Andean altiplano diasporic communities (Chapters 34 and 49 in this volume) and the kaleidoscopic Tupi expansion (Chapter 33 in this volume). And the areal cultural reality most cherished by Central Andeanists becomes fuzzy in Piura and the circum-Gulf of Guayaquil area (see Chapter 44 in this volume).

Historian David Ludden (2001: 5) has observed that area studies disciplinarians are "committed to the particularity of a specific world region." Certainly, this has been the approach of most archaeologists in the Central Andes and throughout South America, and the field has been criticized for its (alleged) insularity, but for the Central Andes, without recognition by these critics of the profound and phenomenological realities of "Andean-ness" (see discussion in Isbell and Silverman 2002b). Here I argue that construction of local developmental sequences (culture history) and greater understanding of their societal components (contextual archaeology) is necessary for the inductive method of Steward's

generalizing multi-linear evolution for the study of culture change and the later processualists' similar quest for comparative valid laws (universalizing archaeology) as well as for postprocessualism's more nuanced queries. Site- or region-specific data/knowledge provide the necessary material for testing theory. It is theory that can and should address area-specific knowledge so as to generate engagement with cognate societies elsewhere. As Ludden (1999) has argued, these two ways of knowing—universal and contextual—underpin all the social sciences and humanities.

Today, most archaeology in South America is conducted areally rather than transareally. National scholars tend to work within their own countries. Foreign scholars tend to be specialists in the archaeology of one country or adjacent ones in the case of pre-Columbian societies whose geopolitical range crossed contemporary political frontiers (e.g., Tiwanaku, Inca). In addition, most archaeologists specialize in either “complex” or “non-complex” social formations (notable exceptions include Tom Dillehay and Daniel Sandweiss, see, e.g., Dillehay 1977, 1979, 1989, 2001, 2004; Dillehay et al. 1992; Sandweiss 1992, 1996; Sandweiss et al. 1998; Heyerdahl, Sandweiss and Narvaez 1995). In South America this evolutionary divide has largely separated scholars working along the narrow western fringe of the continent defined by the Andes Mountains and their adjacent coasts from scholars in the rest of the vast continent. New work and new approaches, however, are seeking to correct this insularity. For instance, Cristóbal Gnecco (see Chapter 56 in this volume) recently circulated a notice about a new South American archaeology journal, *Arqueología Sudamericana/Arqueologia Sul-Americana*, published at the Universidad de Cauca where he teaches, with a goal to “create relations of understanding, comprehension, communication, and discussion between the two big South American worlds: Brazil [i.e., Portuguese-speaking] and the Spanish-speaking countries, who have ignored each other for so long.” He observes, “It’s a pity that the barrier between two similar languages has divided the subcontinent this way, especially because the South American countries share problems and similar possibilities that they could work on collectively” (Gnecco 2005: 127–128, my translation [Note 4]). All efforts to connect scholars around common interests and new perspectives developed by South American South Americanists (see, e.g., Politis 2003; Dillehay in press) is welcome for the multi-dimensional, amplifying effects such interaction will have on the furtherance of a holistic (theoretically informed and diverse), methodologically rich and more socially engaged archaeology [Note 5].

CONCLUSION

As indicated in the Preface, this volume could have been organized in several, equally valid ways. The choice William H. Isbell and I made was designed to encourage comparison across the traditional culture areas and contemporary countries of South America around major themes. Although theory does not dominate the *HSAA* because of its role as a handbook (a similar constraint on the *HSAI*), many authors have framed the empirical problems of their chapters with significant theoretical insight.

That areal thinking still dominates American and Americanist academic archaeology and that there is a geocultural bias in academic archaeology is readily revealed in any job ad—for instance, “Wanted: Andeanist,” which is then followed by the particular theoretical (e.g., “complex societies” or “social complexity”—depending on the dominance of processual or postprocessual archaeologists on the search committee) and technical skills (e.g., “GIS,” “pottery analysis”) sought. Most archaeologists would still identify themselves as

“an Andeanist,” “an Egyptologist,” “a North Americanist” rather than saying “a practice-agency-materialist.” But the vocal and prolific efforts of a new group of theory-driven scholars is starting to shift the dominant paradigm from geographically based archaeological cultures to supra-areal theoretical issues (such as elite agency, commoner resistance and negotiation, identity practices, and so on).

Particularly in Latin America, whose countries are recognizably and admittedly poorer than the United States and whose universities and national research institutes are therefore less funded than their U.S. counterparts (Mexico’s multi-million dollar budget for a select group of mega-projects is an exception to this generalization), national archaeologists tend to focus on the prehistory of their own countries rather than working outside of them. It is the Americans and Europeans who have the luxury to conduct research in foreign lands, and the argument has been made that American archaeology outside the United States is inherently “colonialist” or “imperialist” (Patterson 1986a, b) [Note 6]. But this has not been the intent of the vast majority of U.S. scholars working today in Latin America and, specifically in terms of this volume, South America. Indeed, a host of publications from many countries reveal significant, enthusiastic, and productive intellectual partnerships. These are becoming evermore balanced as national archaeologists receive the same level of academic training (in distinction to field practices, where they usually excel) as their U.S. counterparts. And in some cases, national archaeologists are driving the international research agenda with brilliant results (the study of ancient Moche society on Peru’s north coast is an example; see Uceda and Mujica 1994, 2003). In the context of the remarks just made, William H. Isbell and I felt it imperative to address the contemporary context and practice of archaeology in South America; these papers appear in the final section of the *HSAl* (other essays that should be consulted include Barreto 1998; Benavides 2004; Castillo Butters and Mujica Barrera 1995; Funari 1999, 2005; Gnecco 1999; López Mazz 1999; Mamani Condori 1989; Patterson 1989, 1995, 1996; Politis 1999; Salazar 1995; Vargas Arenas and Sanoja 1999; Williams 1996; Yacobaccio 1994).

Thanks to the outreach and financial support of the World Archaeological Congress, archaeologists from less developed countries are able to participate in major international meetings, engendering a trans-areal and supra-areal dialogue around issues of concern. More prosperous countries, such as Mexico, are able to fund their archaeologists to regularly attend international meetings. In addition, the very advance of research is breaking down the provincialism of archaeology. Thus, a recent article in *The SAA Archaeological Record* expounded “a continental perspective for North American archaeology” (Lekson and Peregrine 2004), recognizing that some empirical problems (in their case: “Why are there Mexican sumptuary objects at Chaco Canyon and none at Cahokia?”) require crossing boundaries (those of the traditional culture areas and contemporary political borders). I completely agree that, “global history suggests that the world itself has a history of interconnections and linkages among its regions and civilizations” (Lekson and Peregrine 2004: 15). Late Pleistocene studies concerning early peopling and ecological and cultural adaptations have long required continental and, indeed, hemispheric perspectives. Caribbean prehistory can not be understood without reference to the Orinoco basin from which the first migrants emigrated. Navigable river systems in South America have long promoted and facilitated trade over immense distances (e.g., Lathrap 1973) and population groups migrated (e.g., Chapters 33 and 34 in this volume). Many symposia at the annual meetings of the Society for American Archaeology are framed in terms of a theoretical issue (from the 2006 annual meeting for instance, feasting and politics in pre-state societies, households and political economy, rational actors in complex societies), and many

are areally based (e.g., archaeology in the Caribbean region, archaeology in northern and central South America) or particularly culturally based (e.g., Andean states: Wari and Inca; panels focused on a site or culture usually are the result of large-team, multi-year projects). A growing number of panels explicitly integrate theory and culture/culture area (e.g., “agency, settings and architecture in Andean archaeology”; “theorizing the Late Intermediate Period in the Andes: large-scale patterns, local trajectories”). Many important empirical problems remain unsolved and meaningful theorizing requires deep areal competence, achieved only by extended fieldwork in a region with hands-on data analysis. This should never be sacrificed to theoretical fashion.

Academic pursuits are never independent of their larger real-life contexts. For instance, it is no coincidence that the surge of archaeological interest in ethnic/cultural identity in the late 1980s and throughout 1990s occurred at a time of aggressive ethnogenesis and ethnocide in the world around us (the recent war in the Balkans is a paradigmatic example). Thus, the current push for supra-areal engagement intellectually, recognition of supra-areal linkages in ancient times, and continued interest in the generalities and variations in processes of hegemony and performative domains of social, political, economic, religious and ideological power co-occur with similar studies of globalization today.

That archaeology usually responds, borrows, and adapts (especially theory from outside the discipline) rather than innovates is not a negative attribute of the field. To the contrary, archaeology is relevant precisely because it is dynamic and creative. The great cultural diversity of South America in the past has been scientifically studied for more than a century and will remain interesting well into the future. South America offers case studies of relevance to particular culture area interests and to cross-cultural concerns at the most fundamental empirical levels and the most rarefied theoretical planes. This handbook hopes to inform the reader and stimulate further integrative research.

ACKNOWLEDGMENTS I thank Tom Dillehay for his valuable comments on this chapter and for sharing with me his paper (in press) called “Latin American archaeology in history and practice.” I am responsible for the final form of this chapter.

NOTES

1. With the onset of the Cold War area studies received yet more attention and investment from the government in the form of Title VI of the National Defense Education Act (1957) whose grants established many area centers at U.S. university campuses out of a concern that Americans did not adequately understand the rest of the world. Interestingly, that initiative was preceded by the Ford Foundation’s creation of “centers of excellence” for area studies at select universities (Ford Foundation 1999: v).
2. Cooper’s 1942 publication presented a tripartite scheme: “sierral, silval, marginal” and is the scheme that seems to be more frequently discussed by scholars (see, e.g., Willey 1971: 17–18), including Steward, notwithstanding his quadrupartite preference.
3. Steward did, however, propose diffusion within South America. He argued that there was an early hearth of Formative Period culture in either Peru or Mesoamerica from which its patterns diffused (Steward 1949a: 745). He thought “the simpler forms of the Circum-Caribbean area were derived from the more complex ones, like those of the Andes” (Steward 1949a: 746–747). Lathrap (1970, 1974, 1985) argued for the reverse direction of diffusion throughout his career.
4. Note, however, that within South America there is already some collaborative research transcending national borders. Dillehay (in press), for instance, notes the joint work of Chilean and Argentine archaeologists in the study of the Late Pleistocene occupation of Patagonia.
5. Dillehay (in press) has specifically listed a dozen major research themes of global interest in which South Americanists have made and are making major contributions: the role of craft specialization in the emergence of social

complexity; household archaeology; exchange systems; agricultural origins and early village development; animal domestication; chiefdoms; urbanism and state development; warfare; power, identity and ideology; the study of art, style, ritual and myth; archaeoastronomy; ethnoarchaeology.

6. In this regard it is relevant to mention WAC, the World Archaeological Congress. WAC advocates “the need to recognize the historical and social roles as well as the political context of archaeology, and the need to make archaeological studies relevant to the wider community” (<http://ehlt.flinders.edu.au/wac/site/about.php>). WAC “was founded with an agenda (if not always explicitly expressed) to decolonize archaeology, resist Eurocentricity, embrace diversity, and, more importantly, advocate the importance of an engaged and value-committed archaeology” (Hamilakis 2005: 95). With regard to archaeology as colonialist and imperialist see also Gathercole (1994), Lowenthal (1994), Scarre (1994), and Smith (2005) among many other references that could be cited. The argument that U.S. archaeology directed at the study of Native American Indians has been colonialist is obvious, with references too numerous to cite here.

REFERENCES

- Barreto, Christiana, 1998, Brazilian archaeology from a Brazilian perspective. *Antiquity* 72: 573–582.
- Benavides, O. Hugo, 2004, *Making Ecuadorian Histories. Four Centuries of Defining Power*. University of Texas Press, Austin.
- Bennett, Wendell C., 1946, The Andean highlands: an introduction. In *Handbook of South American Indians, Vol. 2, The Andean Civilizations*, edited by Julian H. Steward, pp. 1–60. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____, (ed.), 1948, *A Reappraisal of Peruvian Archaeology*. Memoir 4. Society for American Archaeology, Menasha.
- Bhabha, Homi K., 1994, *The Location of Culture*. Routledge, London and New York.
- Bruhns, Karen Olsen, 1994, *Ancient South America*. Cambridge University Press, Cambridge.
- Castillo Butters, Luis Jaime and Elias Mujica Barreda, 1995, Peruvian archaeology: crisis or development? *SAA Bulletin* 13 (3): 18–20. Society for American Archaeology.
- Cooper, John M., 1941, Temporal sequence and the marginal cultures. *Anthropological Series*, Number 10. The Catholic University of America, Washington, D.C.
- _____, 1942, Areal and temporal aspects of South American culture. *Primitive Man* 15 (1–2): 1–38. Catholic Anthropological Conference, Washington, D.C.
- Dillehay, Tom D., 1977, Tawantinsuyu integration of the Chillón Valley, Peru: a case of Inca geo-political mastery. *Journal of Field Archaeology* 4 (4): 397–405.
- _____, 1979, Pre-hispanic resource sharing in the Central Andes. *Science* 204: 24–31.
- _____, 1989, *Monte Verde. A Late Pleistocene Settlement in Chile*. 2 volumes. Smithsonian Institution Press, Washington, D.C.
- _____, 2001, Town and country in late Moche times: a view from two northern valleys. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 259–283. National Gallery of Art, Washington, D.C.
- _____, 2004, Social landscape and ritual pause. Uncertainty and integration in Formative Peru. *Journal of Social Archaeology* 4 (2): 239–268.
- _____, in press, Latin American archaeology in history and practice.
- _____, et al., 1992, Earliest hunters and gatherers of South America. *Journal of World Prehistory* 6 (2): 145–204.
- Fladmark, Knut, 1979, Routes: alternate migration corridors for Early Man in North America. *American Antiquity* 44: 55–69.
- Ford Foundation, 1999, *Crossing Borders. Revitalizing Area Studies*. Ford Foundation. http://www.fordfound.org/publications/recent_articles/docs/crossingborders.pdf (accessed 7 April 7 2005)
- Fried, Morton H., 1967, *The Evolution of Political Society*. Random House, New York.
- Funari, Pedro Paulo A., 1999, Brazilian archaeology: a reappraisal. In *Archaeology in Latin America*, edited by Gustavo G. Politis and Benjamin Alberti, pp. 17–37. Routledge, London and New York.
- _____, 2005, Reassessing archaeological significance. Heritage of value and archaeology of renown in Brazil. In *Heritage of Value, Archaeology of Renown. Reshaping Archaeological Assessment and Significance*, edited by Clay Mathers, Timothy Darvill, and Barbara J. Little, pp. 125–136. University Press of Florida, Gainesville.
- Gathercole, Peter, 1994, Introduction. In *The Politics of the Past*, edited by Peter Gathercole and David Lowenthal, pp. 1–6. Routledge, London and New York.

- Gnecco, Cristóbal, 1999, Archaeology and historical multivocality. A reflection from the Colombian multicultural context. In *Archaeology in Latin America*, edited by Gustavo G. Politis and Benjamin Alberti, pp. 258–270. Routledge, London and New York.
- , 2005, Announcement published in *Archaeologies. Journal of the World Archaeological Congress* 1 (1): 127–128.
- Gross, Daniel (ed.), 1973, *Peoples and Cultures of Native South America*. Natural History Press, Garden City, NY.
- Haas, Jonathan and Winifred Creamer, 2004, Cultural transformations in the Central Andean Late Archaic. In *Andean Archaeology*, edited by Helaine Silverman, pp. 35–50. Blackwell, Malden, MA.
- Hamilakis, Yannis, 2005, Whose world and whose archaeology: the colonial present and the return of the political. *Archaeologies. Journal of the World Archaeological Congress* 1 (2): 94–101.
- Helms, Mary W., 1976, *Ancient Panama. Chiefs in Search of Power*. University of Texas Press, Austin.
- Hewett, Edgar Lee, 1939, *Ancient Andean Life*. Bobbs-Merrill, New York.
- Heyerdahl, Thor, Daniel H. Sandweiss, and Alfredo Narvaez, 1995, *Pyramids of Tucume. The Quest for Peru's Forgotten City*. Thames and Hudson, New York.
- Isbell, William H. and Helaine Silverman, 2002a, Theorizing variations in Andean sociopolitical organization. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 3–11. Kluwer Academic/Plenum Publishers, New York.
- and Helaine Silverman, 2002b, Writing the Andes with a capital 'A.' In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 371–380. Kluwer Academic/Plenum Publishers, New York.
- and Helaine Silverman, 2006a, Regional patterns. In *Andean Archaeology III: North and South*, pp. 3–19. Springer, New York.
- and Helaine Silverman, 2006b, Rethinking the Central Andean co-tradition. In *Andean Archaeology III: North and South*, pp. 497–518. Springer, New York.
- Jennings, Jesse D., 1978, *Ancient South Americans*. W. H. Freeman, New York.
- Jett, Stephen C., 1978, Precolumbian transoceanic contacts. In *Ancient South Americans*, edited by Jesse D. Jennings, pp. 337–393. W. H. Freeman, New York.
- Johnson, Allen W. and Timothy Earle, 1987, *The Evolution of Human Societies. From Foraging Group to Agrarian State*. Stanford University Press, Stanford.
- Joyce, Thomas A., 1912, *South American Archaeology. An Introduction to the Archaeology of the South American Continent With Special Reference to the Early History of Peru*. G. P. Putnam's Sons, New York.
- JPRI (Japan Policy Research Institute), 2005, About area studies and Japan. A dialogue between Chalmers Johnson and Hidenori Ijiri. *JPRI Occasional Paper*, No. 34 (August 2005). <http://www.jpri.org/publications/occasionalpapers/op34.html> (accessed 7 April 2005)
- Kroeber, A. L., 1939, *Cultural and Natural Area of Native North America*. University of California Publications in American Archaeology and Ethnology, Vol. 38.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, New York.
- , 1973, The antiquity and importance of long-distance trade relationships in the moist tropics of pre-Columbian South America. *World Archaeology* 5 (2): 170–186.
- , 1974, The moist tropics, the arid lands, and the appearance of great art styles in the New World. In *Art and Environment in Native America*, edited by Mary Elizabeth King and Idris B. Traylor, pp. 115–158. Special Publications, No. 7. Museum of Texas Tech University, Lubbock.
- , 1985, Jaws: the control of power in the early Nuclear American ceremonial center. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 241–267. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Lekson, Stephen H. and Peter N. Peregrine, 2004, A continental perspective for North American archaeology. *The SAA Archaeological Record* 4 (1): 15–19. Society for American Archaeology.
- López Mazz, José M., 1999, Some aspects of the French influence upon Uruguayan and Brazilian archaeology. In *Archaeology in Latin America*, edited by Gustavo G. Politis and Benjamin Alberti, pp. 38–58. Routledge, London and New York.
- Lowenthal, David, 1994, Conclusion: archaeologists and others. In *The Politics of the Past*, edited by Peter Gathercole and David Lowenthal, pp. 302–314. Routledge, London and New York.
- Lowie, Robert H., 1948, The tropical forests: an introduction. In *Handbook of South American Indians, Vol. III, The Tropical Forest Tribes*, edited by Julian H. Steward, pp. 1–56. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Ludden, David, 1999, Why area studies? <http://www.sas.upenn.edu/~dludden/whyarea.htm> (accessed 7 April 2005)

- _____, 2001, Area studies in the age of globalization. <http://www.sas.upenn.edu/~dludden/GlobalizationAndAreaStudies.htm> (accessed 7 April 2005)
- Lumbreras, Luis G., 1981, *Arqueología de la América Andina*. Editorial Milla Batres, Lima.
- Lyon, Patricia (ed.), 1974, *Native South Americans: Ethnology of the Least-Known Continent*. Little, Brown, Boston.
- Mamani Condori, Carlos, 1989, History and prehistory in Bolivia: what about the Indians? In *Conflict in the Archaeology of Living Traditions*, edited by Robert Layton, pp. 46–59. Routledge, London and New York.
- Marcos, Jorge, 1977–78, Cruising to Acapulco and back with the Thorny Oyster set: a model for lineal exchange systems. *Journal of the Steward Anthropological Society* 9 (1–2): 99–132.
- Meggers, Betty, 1992, *Prehistoria Sudamericana. Nuevas Perspectivas*. Taraxacum, Washington, D.C.
- Orlove, Benjamin, 2002, Editorial. Spatial and temporal scales and cultural processes in area studies. *Current Anthropology* 43 (2): 349–350.
- Patterson, Thomas C., 1986a, The last sixty years: towards a social history of Americanist archaeology in the United States. *American Anthropologist* 88 (1): 7–26.
- _____, 1986b, Some postwar theoretical trends in U.S. archaeology. *Culture* 6 (1): 43–54.
- _____, 1989, Political economy and a discourse called ‘Peruvian archaeology.’ *Culture and History* 4: 35–64.
- _____, 1995, Archaeology, history, indigenismo, and the state in Peru and Mexico. In *Making Alternative Histories. The Practice of Archaeology and History in Non-Western Settings*, edited by Peter R. Schmidt and Thomas C. Patterson, pp. 69–85. School of American Research, Santa Fe.
- _____, 1996, Conceptual differences between Mexican and Peruvian archaeology. *American Anthropologist* 98 (3): 499–505.
- Politis, Gustavo G., 1999, Introduction: Latin American archaeology: an inside view. In *Archaeology in Latin America*, edited by Gustavo G. Politis and Benjamin Alberti, pp. 1–13. Routledge, London and New York.
- _____, 2003, The theoretical landscape and the methodological development of archaeology in Latin America. *American Antiquity* 68 (2): 245–272.
- Radin, Paul, 1942, *Indians of South America*. Doubleday, Doran, New York.
- Ranere, Anthony J. and Richard G. Cooke, 2003, Late Glacial and Early Holocene occupation of Central American tropical forests. In *Under the Canopy. The Archaeology of Tropical Rain Forests*, edited by Julio Mercader, pp. 219–248. Rutgers University Press, New Brunswick.
- Ribeiro, Darcy, 1968, *The Civilizational Process*. Smithsonian Institution Press, Washington, D.C.
- _____, 1970, The civilizational process and the culture-historical configurations of the American peoples. *Current Anthropology* 11 (3/4): 403–434.
- _____, 1972, *The Americas and Civilization*. E. P. Dutton, New York.
- Rouse, Irving, 1948, The Arawak. In *Handbook of South American Indians, Vol. IV, The Circum-Caribbean Tribes*, edited by Julian H. Steward, pp. 507–546. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____, 1948, The Carib. In *Handbook of South American Indians, Volume IV, The Circum-Caribbean Tribes*, edited by Julian H. Steward, pp. 547–565. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Salazar, Ernesto, 1995, Between crisis and hope: archaeology in Ecuador. *SAA Bulletin* 13 (4): 34–37. Society for American Archaeology.
- Salomon, Frank and Stuart B. Schwartz (eds.), 1999, Introduction. *The Cambridge History of the Native Peoples of the Americas. Volume III, Part I: South America*, edited by Frank Salomon and Stuart B. Schwartz, pp. 1–18. Cambridge University Press, Cambridge.
- Sandweiss, Daniel H., 1992, *The Archaeology of Chincha Fishermen: Specialization and Status in Inka Peru*. Bulletin of the Carnegie Museum of Natural History, No. 29. Pittsburgh.
- _____, 1996, The development of fishing specialization on the Central Andean coast. In *Prehistoric Hunter-Gatherer Fishing Strategies*, edited by Mark G. Plew, pp. 41–63. Department of Anthropology, Boise State University, Boise.
- _____, et al., 1998, Quebrada Jaguay: early South American maritime adaptations. *Science* 281: 1830–1832.
- Scarre, Chris, 1994, The western world view in archaeological atlases. In *The Politics of the Past*, edited by P. Gathercole and D. Lowenthal, pp. 11–18. Routledge, London and New York.
- Service, Elman R., 1962, *Primitive Social Organization*. Random House, New York.
- Shady, Ruth, 2006, America’s first city? The case of Late Archaic Caral. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 28–66. Blackwell, Malden, MA.

- Slocum, Karla and Deborah A. Thomas, 2003, Rethinking global and area studies: insights from Caribbeanist anthropology. *American Anthropologist* 105 (3): 553–565.
- Smith, Claire, 2005, The World Archaeological Congress: extending the vision. *Archaeologies. Journal of the World Archaeological Congress* 1 (1): 130–138.
- Steward, Julian H., 1938, *Basin-Plateau Aboriginal Sociopolitical Groups*. Bureau of American Ethnology, Bulletin 120. Smithsonian Institution, Washington, D.C.
- , 1942, The direct historical approach to archaeology. *American Antiquity* 7 (4): 337–343.
- (ed.), 1946a, *Handbook of South American Indians, Vol. I, The Marginal Tribes*. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- (ed.), 1946b, *Handbook of South American Indians, Vol. II, The Andean Civilizations*. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- (ed.), 1948a, *Handbook of South American Indians, Vol. III, The Tropical Forest Tribes*. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- (ed.), 1948b, *Handbook of South American Indians, Vol. IV, The Circum-Caribbean Tribes*. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- , 1948c, The Circum-Caribbean tribes: An Introduction. In *Handbook of South American Indians, Vol. IV, The Circum-Caribbean Tribes*, edited by Julian H. Steward, pp. 1–41. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- , 1948d, A functional-developmental classification of American high cultures. In *A Reappraisal of Peruvian Archaeology*, edited by Wendell C. Bennett, pp. 103–104. Memoir 4. Society for American Archaeology, Menasha.
- , 1949a, South American cultures: an interpretative summary. In *Handbook of South American Indians, Vol. V, The Comparative Anthropology of South American Indians*, edited by Julian H. Steward, pp. 669–772. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- , 1949b, Development of complex societies: cultural causality and law: a trial formulation of the development of early civilizations. *American Anthropologist* 51 (1): 1–27. (reprinted in 1955 in *Theory of Culture Change. The Methodology of Multilinear Evolution* by Julian H. Steward, pp. 178–209. University of Illinois Press, Urbana) [Steward 1955a]
- , 1950, *Area Research*. Social Science Research Council, New York.
- , 1951, Levels of sociocultural integration: an operational concept. *Southwest Journal of Anthropology* 7: 374–390. (reprinted in 1955 in *Theory of Culture Change. The Methodology of Multilinear Evolution* by Julian H. Steward, pp. 43–63. University of Illinois Press, Urbana) [Steward 1955b]
- , 1953, Multilinear evolution: evolution and process. In *Anthropology Today: An Encyclopedic Inventory*, edited by A. L. Kroeber, pp. 313–326. University of Chicago Press, Chicago. (reprinted in 1955 in *Theory of Culture Change. The Methodology of Multilinear Evolution* by Julian H. Steward, pp. 11–29. University of Illinois Press, Urbana) [Steward 1955c]
- , 1955d, Culture area and cultural type in aboriginal America: methodological considerations. In *Theory of Culture Change. The Methodology of Multilinear Evolution*, by Julian H. Steward, pp. 78–97. University of Illinois Press, Urbana.
- , 1955e, Analysis of complex contemporary societies: culture patterns of Puerto Rico. In *Theory of Culture Change. The Methodology of Multilinear Evolution*, by Julian H. Steward, pp. 210–222. University of Illinois Press, Urbana.
- , 1956, Cultural evolution. *Scientific American* 194: 69–80.
- , 1960a, Introduction. In *The Irrigation Civilizations: A Symposium on Method and Result in Cross-Cultural Regularities*, by Julian H. Steward et al., pp. 1–5. Pan American Union, Washington, D.C.
- , 1960b, Some implications of the symposium. In *The Irrigation Civilizations: A Symposium on Method and Result in Cross-Cultural Regularities*, by Julian H. Steward et al., pp. 58–78. Pan American Union, Washington, D.C.
- , 1960c, Evolutionary principles and social types. In *Evolution After Darwin*, Volume 2, edited by Sol Tax, pp. 169–186. University of Chicago Press, Chicago.
- , 1970, Cultural evolution in South America. In *The Social Anthropology of Latin America: Essays in Honor of Ralph L. Beals*, edited by Walter Goldschmidt and Harry Hoijer, pp. 199–223. University of California Press, Berkeley.
- , 1972, The concept and method of cultural ecology. In *Theory of Culture Change. The Methodology of Multilinear Evolution*, by Julian H. Steward, pp. 30–42. University of Illinois Press, Urbana. [originally 1968]
- and Louis C. Faron, 1959, *Native Peoples of South America*. McGraw-Hill, New York.
- and Frank M. Setzler, 1938, Function and configuration in archaeology. *American Antiquity* 4 (1): 4–10.

- Thomas, Brian W., 2001, African-American tradition and community in the Antebellum South. In *The Archaeology of Tradition. Agency and History Before and After Columbus*, edited by Timothy R. Pauketat, pp. 16–33. University Press of Florida, Gainesville.
- Uceda, Santiago and Elías Mujica (eds.), 1994, *Moche. Propuestas y Perspectivas*. Universidad Nacional de La Libertad, Instituto Francés de Estudios Andinos, Asociación Peruana para el Fomento de las Ciencias Sociales, Trujillo and Lima.
- and Elías Mujica (eds.), 2003, *Moche Hacia el Final del Milenio*, 2 volumes. Pontificia Universidad Católica del Perú and Universidad Nacional de Trujillo, Lima and Trujillo.
- Vargas Arena, Iraida and Mario Sanoja, 1999, Archaeology as a social science. Its expression in Latin America. In *Archaeology in Latin America*, edited by Gustavo G. Politis and Benjamin Alberti, pp. 59–75. Routledge, London and New York.
- Webbink, Paul, 1950, Foreword. In *Area Research* by Julian Steward, pp. vii–ix. Social Science Research Council, New York.
- Willey, Gordon R., 1953, *Prehistoric Settlement Patterns in the Virú Valley, Peru*. Bulletin 155. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- , 1971, *An Introduction to American Archaeology, Vol. 2, South America*. Prentice-Hall, Englewood Cliffs, NJ.
- Williams, Denis, 1996, Archaeology in the Guianas. *SAA Bulletin* 14 (1): 10–12. Society for American Archaeology.
- Wilson, David J., 1999, *Indigenous South Americans of the Past and Present. An Ecological Perspective*. Westview, Boulder.
- Wissler, Clark, 1917, *The American Indian: An Introduction to the Anthropology of the New World*. D. C. McMurtrie, New York.
- , 1938, *The American Indian*. Third edition. Oxford University Press, New York.
- Yacobaccio, Hugo Daniel, 1994, Argentinian archaeology: the last 20 years. *SAA Bulletin* 12 (4): 10–11.

Profiles in Pleistocene History

TOM D. DILLEHAY

INTRODUCTION

The dating of the first people in South America is a matter of debate. Some scholars adhere to an entry earlier than 15,000 years ago (e.g., Bryan and Gruhn 2003). Others advocate a late arrival 11,000 to 10,000 years ago (e.g., Lynch 1990). In studying the first people of the Americas, the traditional view has been to argue about chronology, place of entry, and migration routes, which places emphasis on the dates, localities, and diffusion of artifact (mainly stone tools) styles (Dillehay 2000; Meltzer 2004). This *entry* approach has a primary concern with the original peopling of previously uninhabited environments during the late Pleistocene period (ca. 13,000–11,000 uncalibrated years ago).

Convincing evidence from a number of sites and patterns place human antiquity at least 12,500 years ago (Dillehay 2000; Salemme and Miotti 2003). The place of initial entry is not known, however, it can be assumed that people first traveled along both the Pacific and Caribbean coastlines and through interior routes of Panama to spread across South America.

Although chronology and place of entry are important, recent studies have shifted to the nature of the entry and subsequent dispersion and colonization of the continent and to the fundamental patterns of social and economic organization that set the stage for cultural developments in the following Holocene period (see Dillehay 2000; Lavallée 2000). Because South America is one of only a few places in the world where pristine civilization developed early, we need to understand cultural developments during the Pleistocene and Holocene transition to identify the first pulses towards social complexity (Dillehay 1999). This is the *exit* approach, which shifts the primary emphasis to site location studies, faunal and floral studies, seasonality, mobility and sedentism, and principles of organization.

There is widespread agreement among archeologists that most late Pleistocene and early Holocene human populations were mobile, traversing large foraging territories to meet subsistence, social, technological, and other needs. A broad array of early foraging societies practiced a mobile way of life dictated by the availability of resources and probably by social conflict. Others probably stayed for relatively long periods in resource rich habitats such as deltas and bays, riverine estuaries, and lacustrine environs; others probably aggregated

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

socially for various reasons. In many places, changes in mobility appear to coincide with shifting climatic conditions and biotic reorganization during this period, reflecting adaptations to local subsistence opportunities and increasing population density in some areas. The vastness of unpopulated terrain and the ecological diversity of South America, especially in the Andean mountains and the Amazon basin, offered limitless options for relocation and pursuit of mobile resources.

The archaeology of the first foragers in the southern hemisphere (Figure 2.1) is best documented in the Central Andes, the southern Patagonian plains, Colombia, Peru, Chile, and eastern Brazil where dozens of sites are known (Ardila and Politis 1989; Lavallée 2000; Dillehay 2000; Figure 2.2). Far less is known about the cultural sequence in Ecuador,



Figure 2.1. Location of the major physiographic zones in South America. (Tom D. Dillehay)



Figure 2.2. Location of major early archaeological sites in South America (modified from Dillehay 1999).

- | | | |
|--|--|---|
| 1. Taima-Taima | 14. Intihuasi Cave | 28. Los Toldos |
| 2. Rio Pedregal, Cucuruchó | 15. Gruta del Indio | 29. Fells Cave, Palli Aike, Cerro Sota |
| 3. El Abra, Tequendama, Tibitú | 16. Agua de la Cueva | 30. Mylodon Cave, Cueva del Medio |
| 4. La Elvira | 17. Inca Cueva IV | 31. Tres Arroyos |
| 5. El Inga | 18. Huachichoana III | 32, 33. various sites in northern Chile |
| 6. Las Vegas | 19. Quebrada Seca | 34. Quereo |
| 7. Siches, Amotope, Talara | 20. Toca do Sitio de Meio, Toca do Boqueirao da Pedra Furada | 35. Tagua-Tagua |
| 8. Paiján | 21. various site in Minas Gerais state | 36. Monte Verde |
| 9. Guitarrero Cave | 22. Lapa Vermelha IV | 37. El Ceibo |
| 10. Lauricocha | 23. various Goiás sites | 38. Chobshi Cave |
| 11. Telarmachay, Pachamachay, Uchumachay, Panalauca | 24. Itaborai Sites | 39. Cubilán |
| 12. Pikimachay | 25. Alice Boer | 40. Asana |
| 13. Ring Site, Quebrade de Tacahuay, Quebrada Jaguar, Quebrada de los Burros | 26. Catalaense and Tangurupa complexes | 41. Ubicui and Uruguai Phase sites |
| | 27. Cerro la China, Cerro El Sombrero, La Moderna, Arroyo Seco 2 | 42. Pena Roja |
| | | 43. Quebrada de las Conchas |
| | | 44. Monte Alegre |

Bolivia, the Caribbean rim, the Amazon basin, the Paraná-Uruguay-La Plata River basin, and the canals of southern Chile where only a handful of sites have been located (Figure 2.2). To some degree, the small number of known settlements in these areas reflects the state of archaeological investigation and often low visibility, with vast regions virtually unexplored or with early sites deeply buried below alluvial sediments, invisible to the archaeologist. However, the small number of sites may also reflect the prehistoric reality, indicative of very low population densities or a reluctance to exploit certain environmental zones, such as the vast, dry altiplano plains of highland Bolivia and the forested lowlands of the northern and central tropics.

Stratified caves and rock shelters have traditionally provided most information about early technologies, subsistence patterns, and culture change in South America. Caves have several problems, however. Much debris was tossed out of these shelters or dropped against the walls, thus leaving little intact evidence for the study of internal site structure, which is crucial for gaining insight into the social structure and organization of activities (e.g., Figure 2.2: 3, 4, 9, 10, 12, 14–18, 38, 44). Further, a limited range of activities seems to have taken place perhaps due mainly to the confined nature of cave space. Caves also are notorious for having disturbed cultural deposits. Although perishable materials are not usually as well preserved and the stratigraphy is often problematic (e.g., Figure 2.2: 2, 4, 5, 7, 25, 39, 40, 42), open-air sites generally provide more information on internal site structure, if their deposits are intact.

In addition to archeology, the scant human genetic and skeletal evidence in South America continues to point towards a relatively recent Asian origin for the first Americans (e.g., Merriwether 2002; Schurr 2004; Pucciarelli et al. 2003). Cranial morphology (e.g., Neves et al. 2005) points toward two early human populations in the continent: a non-Mongoloid type with origins somewhere in south Asia and with physical traits distinct from modern Native Americans, and a later Mongoloid type from north Asia with features akin to modern Native Americans. Not yet understood are the relationships between these types and how they relate to cultural diversity revealed in the archeological record. An explanatory model is needed to reconcile the diverging lines of skeletal, genetic, and archeological evidence in South America.

CLIMATIC CHANGE, CHRONOLOGY, AND DIVERSE ENVIRONMENTS

Much emphasis has been placed by scholars on climatic change at the end of the Pleistocene, and there is no doubt it played a major role in many areas of South America (Clapperton 1993). The transition from the late Pleistocene to the early Holocene (ca. 13,000–9,500 uncalibrated years BP) was not an abrupt and smooth transition characterized by alternating cold to warm and dry to humid climates but rather a series of distinct phases marked by different mosaics of shifting temperatures and rates of precipitation. Although a grasp of the continent's environmental history is vital to an understanding of early cultural developments, relevant data are still very fragmentary. A widespread cold dry period peaks some 20,000 to 18,000 years ago, when average global temperatures were approximately 8–10 °C lower than today. Glaciers formed in the higher altitudes and latitudes of the Andean mountains, and the snowlines in them were lowered by at least 1,000m. Sea level in the Pacific and Atlantic oceans dropped 100–120m below the present level, substantially increasing the width of the coastal plains by at least 5–50 km in most areas and submerging

most early archeological sites. In the interiors, reduced evaporation rates due to the low temperatures allowed drainage basins such as Lake Titicaca, Lake Junín, and others in the Central Andes to accommodate more water than they do at present. Although arid conditions prevented large basins such as those in southern Bolivia, northern Chile, and north-west Argentina from being filled, extensive, shallow marshes were present, which attracted both animals and humans. Although not well understood due to its vastness and to the lack of research, current evidence indicates that the Amazon basin was not the dense tropical forest it is today. Instead, it was a mosaic of tropical to semi-tropical forests, parklands, and arid savannas and grasslands. Climatic conditions of the Pampa and Patagonian regions also varied significantly but generally stayed cool or cold and dry.

Some 14,000 to 12,000 years ago, at the end of the last glacial advance, the human population of South America was probably very small and very sparsely distributed. By 11,000 years ago, the present evidence suggests that the highlands of Colombia, the Pacific coastal desert plains of Peru and Chile, eastern Brazil, and southern Patagonia experienced significant occupation by human foragers. While it is generally assumed that wetter and warmer conditions in subsequent millennia facilitated the movement of game animals and humans from the more favorable western Andean areas and eastern Brazilian highlands to the central Amazonian basin, population densities probably remained low. In some preferred locations such as major rivers, bays, wetlands, and highland basins, where humidity and food resources were more abundant and diversified, there may have been large seasonal aggregations; in others such as the arid grasslands of Patagonia, fewer people probably existed.

Paleoecologists normally view the onset of the early Holocene between 10,000 and 9,000 years ago as introducing new biotic conditions in temperate latitudes, which led to the proliferation of several important resources on which human populations became increasingly dependent. Not yet fully recognized by scientists is the impact of human activity on these conditions. People not only hunted animals but transported plants and intentionally or accidentally burned areas, which altered the biotic compositions of local habitats. By 10,500 to 10,000 BP, there were hunter-gatherer groups adapting to and exploiting a wide range of modern biotic communities similar to their successors during the later Holocene or Archaic periods (ca. 9,000–5,000 BP). Unlike North America (Dillehay 1999), only a small handful of South American sites exploited extinct megafauna (e.g., Figure 2.2: 1, 29, 34, 35, 36), and these sites also contain modern animal species. Intensive plant exploitation appears to have begun by 10,000 BP in a few places in the Central Andes and possibly the eastern tropical lowlands. Seed use (a hallmark of several sites in the tropical forests of eastern Colombia and Brazil, the temperate forests of southern Chile, and the xerophytic forests of coastal Peru; Figure 2.2: 21, 23, 36, 42, 43, 44) also became widespread in terminal Pleistocene and early Holocene times. Given the Archaic-like broad-spectrum diet and early plant manipulation of most late Pleistocene foragers in South America, I have referred to them as Proto-Archaic foragers rather than specialized Paleo-Indian big-game hunters (Dillehay 2000: 8).

As in other parts of the world the Americas were the home to many species of large animals during the Pleistocene period. Several species of megafauna in South America became extinct at the end of this era, including giant ground sloth, giant bear, giant armadillo, American horse, paleolama, mastodont, and others. There are several principal reasons for extinction: hunting by people, climatic and environmental changes, and ecological pressures resulting from the first two causes. Which factors are primary and secondary have not yet been well studied, and it is probable that one or a combination of variables

affected different species in different places at different times, with climatic change most likely playing the most determining role in most cases.

Admittedly, this description of the first people and early climates of South America draws on evidence from many regions and from a considerable span of time and, as such, is overly generalized. Nevertheless, relative to later subsistence adaptations, which are well known for their emphasis on a wide variety of game, seeds and other vegetal foods, terminal Pleistocene people focused on more highly ranked resources (e.g., marine resources, paleolama and deer, abundant year round plants such as tubers in wetlands, pine and palm nuts, carob bean). Thus, there can be little doubt that the quality and distribution of certain preferred foods, stone, and other resources substantially influenced the subsistence scheduling and mobility tactics of the early foragers. As significant climatic warming proceeded from 11,000 to 9,000 years ago, the archeological record indicates that shifts in diet breadth were necessitated. Almost certainly these were accompanied by changes in mobility and social patterns. But other areas such as the Pacific coastline and nearby Andean foothills and vast areas in the eastern tropics of Brazil were probably less impacted and people likely chose to live separately or communally.

GENERALIZED AND SPECIALIZED FORAGERS

Between 12,500 and 10,000 BP, two different stone tool assemblages or broad cultural traditions occupied portions of South America: one group designated the unifacial Edge-Trimmed Tradition (Bryan and Gruhn 2002) and the other group generally called the Bifacial Tradition. Identification of the two groups is based primarily on the stylistic and technological characteristics of their stone-tool industries—that part of the material culture that is most often preserved—but also on variables such as chronology, site size, distributions of occupation, and patterns of mobility. The Edge-Trimmed assemblage probably emerged out of an earlier as yet unknown bifacial and unifacial tradition. Bifacial assemblages are primarily found at caves and rock shelters and at small sites in the open terrain of the Andean mountains from Colombia to southern Chile and in the Pampa and Patagonian grasslands of the southern cone, but they also have been infrequently observed in forested and savanna areas of eastern Brazil and northern South America (Figure 2.3). The Bifacial Tradition is best represented by El Jobo and Monte Verde, Fishtail, Paiján, and several regional lanceolate and stemmed projectile point styles (Figures 2.4, 2.5). Sites of the Edge-Trimmed period are similar to bifacial occupations in chronology, size and distribution, but occur primarily in forested and parkland areas in northern and central South America (Figure 2.6). Edge-trimmed tools are perhaps most characteristic of the Itaparica Tradition and the Paranaíba, Ibicui, and Uruguai phases of eastern and southern Brazil (Figure 2.2: 20–26, 41), although they also occur in various regions of the Andes (Figure 2.7).

The early settlements of the Edge-Trimmed and Bifacial traditions are usually found close to water sources, such as perennial springs, the interfluvies of drainage systems, and small, sometimes seasonal, marshes and lakes. Most sites were small and ephemeral, such as the Fishtail deposits in the Tandilia Hills, Cerro La China, and Cerro El Sombrero sites in the Pampa and Fell's Cave, Tres Arroyos, Los Toldos and others in central Chile and in southern Patagonia (Figure 2.2: 5, 27, 28, 29, 30, 31, 35, 37), although there were some larger and longer occupations. What seem to be more extensive open-air Fishtail and Paiján settlements in areas like the north coast of Peru, for example, often consist of successive



Figure 2.3. General view of rockshelter site in the Andean mountains of southern Patagonia in Argentina where Fishtail points and early hunter-gatherer cultural deposits are typically recovered. (Tom D. Dillehay)

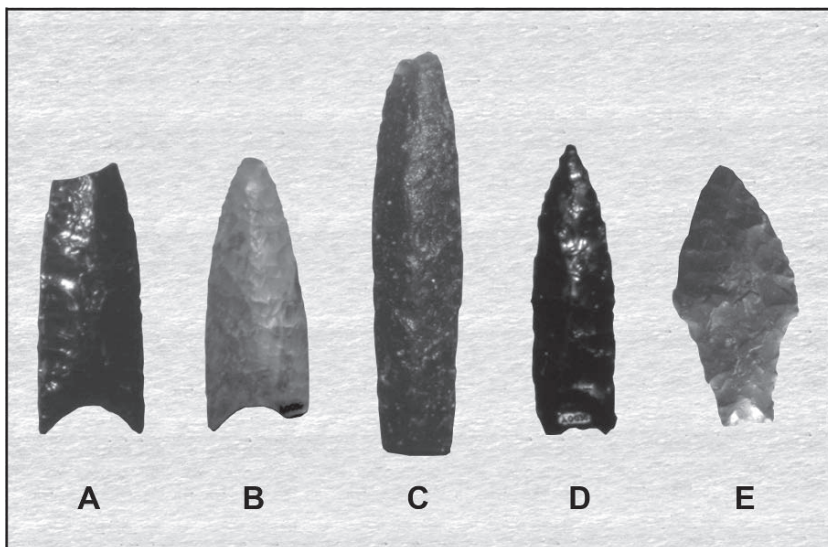


Figure 2.4. Bifacial projectile points from various sites dating between 11,000 and 10,000 years ago in southern Chile: a-b. lanceolate bifaces with concave bases; b. elongated lanceolate with straight base, slightly elongated lanceolate with shallow concave base; c. late Fishtail point with contracting stem and straight base. (Tom D. Dillehay)



Figure 2.5. Paiján projectile points radiocarbon dated between 10,700 and 9,000 years ago on the north coast of Perú. (Tom D. Dillehay)



Figure 2.6. Tequendama rockshelter site in the central highlands of Colombia. (Tom D. Dillehay)



Figure 2.7. Edge-Trimmed stone tools typical of sites dating between 11,000 and 8,000 years ago on the north coast of Perú. (Tom D. Dillehay)

ephemeral occupations over long periods of time rather than a single large site. Generally speaking, most bifacial assemblages seem to be associated with specialized economies, such as hunting. Edge-Trimmed assemblages have more expedient tools and tend to reflect generalized or broad-spectrum economies (e.g., Figure 2.2: 2, 3, 6, 7, 20–24, 26, 41).

There is a wide variety of evidence across the continent that points toward various combinations of specialized hunting and collecting “residential” strategies and broad spectrum “logistical” behavior (*sensu* Binford 1980). In residential mobility, the entire group moves from one camp to another according to the abundance of seasonal resources. With logistical mobility, individuals or small groups pursue specific tasks at small sites while moving to and from a base camp that may or may not be permanently used. Both strategies required planning, foresight, evaluation of risk and uncertainty, and a consensus among group members. Specialized residential hunting strategies were applied throughout the open terrain of the Pampa and Patagonia and the high altitude puna and altiplano areas of Peru, Bolivia, north Chile, and northwest Argentina (Figure 2.2: 10–12, 32–33). The most informative sites in the latter region are Pachamachay, Telarmachay, Uchumachay, San Lorenzo, Tiliviche, and many others.

A few sites seem to have been more than a simple occupation where a small group of hunters stopped for days or even weeks, butchered their kills and gathered plants or manufactured their tools. Instead, they give evidence of more extensive habitation and prolonged use, perhaps over a period of months or even a year or more. Studies of camelid bone remains from several early cave and rock shelter sites in Peru, Chile, and Argentina (Figure 2.2) may suggest logistical hunting systems of base camps and hunting stations that were located to intercept migration routes. It is probable that the human and camelid

interactions established by both residential and logistical hunting strategies eventually led to animal husbandry and domestication in some areas. The animal bone remains also indicate few changes in the procurement and variety of prey through time, except for the extinction of megafauna, and reflect the mix of species available locally, which were usually dominated by deer and paleolama. Whenever the opportunity arose, people also hunted a variety of moderate to small sized game such as rabbit, fox, and water fowl in the Andes and in the southern grasslands. They also caught river fish and collected freshwater mollusks.

Specialized maritime residential settlements along the coast of south Peru and north Chile had access to a wide array of marine and, to a lesser extent, terrestrial species (Figure 2.2: 13, 43). These Pacific communities lived in an environment where littoral, arid plains, and hilly habitats were within easy reach of any given site. Not only were there rich marine resources, but the rugged Andean topography provided a vertical heterogeneity in terrestrial resources. As a result, a sustained maritime foraging tradition persisted throughout the late Pleistocene and Holocene as evidenced by sites such as Quebrada de los Burros, Jaguay and Tacahuay in Peru and Quebrada de las Conchas and Huentelaquen in northern Chile.

A generalized forager lifeway, on the other hand, has been demonstrated at several localities, including the north coast of Peru where the arid coastal plains and the Andean mountains offer several highly compacted ecological zones ranging from desert to tropical montane forest (Figure 2.2: 8). This is an advantageous niche for early residential and logistical foragers, offering an array of essential resources including an ample supply of water in the form of alluvial springs and shallow marshes, rich hunting grounds and fishing localities, and sources of raw lithic material suitable for tool production. There is a series of cultural enclaves at favorable wetland locations across the high and low resource zones, linked to each other through a broad network of seasonal foraging and exchange routes. Closely investigated by archaeologists over the past few decades (e.g., Chauchat 1992), the region has yielded hundreds of sites of the early and late Paiján phases, respectively dated between 11,000 to 10,000 and 10,000 to 8,500 years ago (Dillehay et al. 2003). All were open-air occupations. Both Paiján phases shared a lithic technology and tool kit predominantly based on the production of long needle nose-like projectile points (Figure 2.5), unifacial scrapers and cutting tools, with an important component of limaces in the shape of slugs. They also produced bone and shell tools.

Most early Paiján sites represent generalized hunters and gatherers and small, single-phase residential occupations with discrete scatters of worked lithics. Late Paiján sites seem to represent places selected for longer periods of time, implying that a semi-sedentary to sedentary logistical life had begun by 10,000 to 9,000 BP (Dillehay et al. 2003). A possible reason for this is the increasing abundance of wild resources made available by the amelioration of the climate, with the result that people no longer needed to range over large territories to meet subsistence requirements. Settlements with circular architectural structures (Figure 2.8), multiple-phase occupations, and higher artifact densities became increasingly common. Similar structures also have been found on the north coast of Chile at places such as Acha-2. While Paiján people remained food collectors and hunters, they intensified their endeavors and perhaps even controlled wild species of plants to some extent. Although there is no clear proof for plant cultivation, people were not necessarily ignorant of the possibility.

Both the considerable investment in architecture and the depth and diversity of cultural deposits at late Paiján and Acha sites are suggestive of long-lasting occupation in circumscribed environments. While it is not completely certain that these sites were occupied



Figure 2.8. Circular stone architectural foundation of the late Paiján period that is radiocarbon dated to uncalibrated $9,980 \pm 80$ BP (Beta 154099). (Tom D. Dillehay)

year-round, evidence of thicker floor deposits, greater abundance of trash, and the commitment to permanent architecture have been taken as evidence of longevity and the establishment of “protohouseholds” (*sensu* Boguchi 1999; Dillehay et al. 2003) at these sites, as has the variety of local food plants, especially charred carob or algarrobo beans. Similarly, as mentioned above, evidence for the multi-seasonal hunting of camelids at several highland sites in the central and south-central Andes also may reflect continuous occupation and circumscribed territoriality.

Plant foods also constituted a significant part of the generalized forager diet in some environments, especially wetlands and woodlands, though evidence is still meager owing to matters of preservation and recovery techniques. Exceptions are the site of Monte Verde in south-central Chile (ca. 12,500BP) and the Las Vegas sites in coastal Ecuador (ca. 9,500–8,000BP), which are best known for their wide variety of preserved cultural evidence and for their internal organization of subsistence and maintenance activities. Hearths and concentrations of debris from the manufacture of tools and the preparation of food formed the foci of human activity at these localities. At Monte Verde, a cultural layer over 12,000 years old yielded the remains of hut structures and some seventy species of plants with edible seeds, fruits, and parts (Figure 2.2: 36). While unifacial and bifacial chipped stone was present, the predominant technology was wood and cordage.

On botanical grounds, it has been established that the inhabitants of Las Vegas sites cultivated and domesticated squash ca. 10,000BP (Figure 2.2: 6) (Stothert et al. 2003; Piperno and Stothert 2003), so they were among the first people anywhere in South America to domesticate plants. However, this and other early attempts at cultivation seem to have had a restricted impact, since a complete dependency on cultivated staples is not observable in the Andes and eastern tropical lowlands for another 4,000 to 5,000 years. Important, too, are the preliminary finds at Lapa do Boquete and Paranaíba Phase sites in eastern Brazil (Figure 2.2), where palm nuts and other edible seed and fruit species along with non-food

plants were identified in the late Pleistocene and early Holocene levels dated between 11,300 and 10,000 BP. People at these sites and other sites (Figure 2.2: 42, 44) apparently enjoyed a nutritious and diverse diet. The plants were collected from the wild, rather than tended or grown deliberately, and were used as food and probably as flavorings, medicines, or dyes.

In sum, given the wide range of landscape and diverse resource distribution, patterns of settlement and subsistence varied considerably among the diverse regions of South America during the terminal Pleistocene and early Holocene periods. The apparent shift to increased territoriality and semi-sedentism along the central Pacific coast, possibly in the puna and altiplano of the Andes, and possibly in lowland tropical areas such as the Guayaquil basin in Ecuador, the lower Magdalena River basin in Colombia, and the Orinoco River in Venezuela, is pivotal to this period. In particular, the late Paiján data suggest that when people first settled in permanent localities, they still relied on a subsistence economy based primarily on gathering wild plants and hunting animals. But plant and animal domestication was soon to come, and we may conclude that a semi-sedentary lifestyle, coupled with logistical hunting and gathering, was a prelude to the appearance of the earliest gardening and pastoral communities of the ninth and eighth millennia in the Andes. A new world was in the making at the end of the Pleistocene.

OCCUPATION, COMPLEXITY, AND ORGANIZATION OF SOCIETY

We still know far too little about the typically small and scattered occupations of the first South Americans to arrive at a thorough understanding of forager life in the short period from 13,000 to 9,000 BP. But even with the modest amount of information at hand, it is clear that the earliest communities shared certain characteristics: a dispersal of population, low and fluctuating density of population, small group size, mobility and short-term stay, colonization and permanence in favorable habitats, and diverse, seasonal exploitation of resources. The pattern may have been somewhat different at the end of this period, when there is evidence of prolonged stay and greater permanence of shelter in some resource rich areas. However, in most cases, people remained mobile and continued residential hunting and gathering in small groups.

The small size of the settlements suggests that the number of residents comprised a few dozen people at most. One also receives an impression of short-lived and intermittent occupation at most early sites, given the frequently thin depositional strata. Although we know little to nothing about the social organization of the people living at these sites, site size and duration of occupation suggest small bands aggregating during the productive seasons of the years and dispersing during other times. There must have been social contacts and networks among dispersed groups in order to survive biologically and to exchange the kind of technological information we see in the continent-wide Edge-Trimmed, Fishtail, and Paiján assemblages.

The geographical extent of the territories exploited by the late Pleistocene communities is unknown, but in order to meet the long-term needs of survival it must have been extensive—several hundreds or even thousands of square kilometers, depending on the distribution of natural resources and the character of the landscape. Studies of various ethnographic hunter-gatherers in the Amazon basin and in southern Patagonia have shown that they are aware of the boundaries of their territories, and so undoubtedly

were their prehistoric forerunners. Natural landmarks such as mountains and rivers may have been used in this respect, but cultural signs such as sacred places and rock art may have had a similar significance. Although no hard evidence exists, ceremonies, initiation rites, and group meetings must have added to the expression of the rights of exclusive use of a territory.

It is likely that the early South American foragers were flexible and fluid units. Rather than being closed and fixed groups whose membership was clearly defined, we perhaps should consider them as aggregations of individuals whose affiliations were defined in different ways. Special places such as caves, watering holes, littoral promontories and other places probably played a role in defining a group's social identity. There is no evidence to suggest the accumulation of material goods or the storage of foods for long periods of time, although it is probable that people made caches for later consumption. For the most part, the earliest South Americans were "immediate return hunters and gatherers" (Woodburn 1982), that is, they consumed resources as soon as they acquired them.

The people making early El Jobo, Fishtail, early Paiján, and Itaparica stone tools are likely to have exploited their territories on the basis of immediate returns. An ethic of sharing food and other goods may have been actively encouraged in a fashion similar to that of many modern hunter-gatherer societies. Sharing probably had little or nothing to do with sentiments or generosity; instead, sharing was likely a banking strategy that brought security as it entitled people to a portion of someone else's catch in a time of resource scarcity. Sharing also must have had a significant effect on the structure of social relationships in these societies, and it is likely that each foraging society had its own way of organizing its networks of sharing and exchanging partnerships. Future research should examine the different kinds of sharing, exchange, and other relationships practiced by early foragers, and what they imply about principles of social and economic organization among different foraging strategies.

At some point in time some foragers possibly abandoned sharing and began exploring new possibilities for increasing their subsistence and resource needs, including intensification and exchange. Groups could have created opportunities for increasing yields of plant foods and animals without the obligation to share these resources with others. Such strategies may have included storage of foods, intensified production, domestication, and environmental manipulation. One form of the latter is the use of fire to create and maintain plant associations (Mills 1986) and especially to spatially concentrate game animals in open terrain (Mellars 1976). In some areas burning possibly allowed earlier seasonal plantings and collection of wild plants. Geological reports of excessive burning occurring around 14,000 to 10,000 years ago may be attributed to early humans (see Clapperton 1993).

In some areas, food collection probably took place in the context of delayed-return rather than immediate-return economies, employing a range of strategies based on logistical mobility. Based on the evidence from Monte Verde, late Paiján sites, Las Vegas sites, and probably several caves and rock shelters in eastern Brazil, there seems to be long-lasting logistical settlements at favored sites from which small task groups probably made forays of several days or weeks, searching for food for much larger groups. Several sites associated with the exploitation of marine resources along the coast of Peru and Chile, with reduced territoriality and semi-sedentism of camelid hunters in the puna and altiplano of Peru, Chile, and Argentina, and with plant manipulation in the tropical lowlands of Ecuador, Colombia, Venezuela, and Brazil, also appear to have been occupied for longer periods by 9000 BP.

The decision to become semi-sedentary to sedentary may have been based on regional, not just local, resource distribution, or in the words of Kelly (1995: 152): "Sedentism can be a product of local abundance in a context of regional scarcity." I think this is what may have taken place with some late Paiján groups living around oases-like wetlands in the arid coastal environment of Peru and Chile during the early Holocene period.

Also important to understand is the cultural diversity of early South America, which is not just environmentally determined but also related to deliberate decisions made by groups to develop specialized hunting and gathering strategies and generalized logistical behavior (Bryan and Gruhn 2003; Dillehay 2000). I suspect that in many areas societies continuously fluctuated between mobile foragers and semi-sedentary to sedentary gardeners and/or pastoralists through time and space and that many did so with an annual or even longer periodicity. Increased complexity probably developed in areas where environmental productivity was high but also where the potential for social productivity was even higher, with some hunters and gatherers living adjacent to gardeners, incipient pastoralists, and/or maritime specialists. By 9,000 years ago, when more groups were in contact and more zones were occupied, each social strategy probably was comprised of opportunists who made use of the subsistence strategies of the others. This mosaic was best achieved in areas where groups were socially and environmentally compacted and within easy reach of others such as the Pacific coast and closely juxtaposed Andean mountains of Ecuador, Peru and Chile and the large deltas of the Gulf of Guayaquil and the large deltas mentioned above where mixed gardening, hunting and gathering, and marine economies were probably carried out within several kilometers of each other and where different kinds of social principles of organization were rapidly developed. These conditions were certainly influenced by the natural environment but also by the kinds of social interactions that different groups were having with their neighbors through time (Dillehay et al. 2003). The study of these interaction patterns holds great promise for understanding the contributions of early societies to the development of later complex Archaic cultures and for understanding the spread of domesticates and mixed economic strategies that developed even later.

Although strategies of mobility and sedentism depended on environmental factors, social and ritual considerations also must have been important. Mobility was a social affair, part of what has been termed the "appropriation" or "enculturation" of the landscape: migratory routes may have received physical marks of recognition, the location of settlement may have been given ritual significance, and mountains and rivers may have entered the cosmological world. Extensive knowledge of South American landscapes and their resources was critical in order to have alternatives in case an expected resource was not available; it required total memorization, which was maintained and passed on from generation to generation probably through ceremonies and initiation rites and intermittent training. The symbolic and ancestral significance often given to landmarks such as rivers, forests, and mountains may have emphasized principles of belief, but it may also have served to support more mundane aims, as a means of communication, icons of social differentiation, or claims of ownership. In this regard, order and meaning were probably brought to the natural world and the role of people in it. Although there is as yet little or no proof in the archaeological data base that any of the above considerations were of importance to early foragers in South America, the significantly increased social complexity evident in the eighth and seventh millennia BP and the appearance of pyramids and proto-urban settlements in the fifth millennium BP in the Central Andes suggest that the option was, at least, not unlikely.

There has been little speculation on the degree of social complexity of the first South Americans. The probable domestication of plants and animals, greater permanence of

settlement, the intensification of food collecting, and the occurrence of grinding stones and permanent structures in a few early Holocene localities have all been taken as evidence of an increasing elaboration of society in the tenth to ninth millennia BP. We would discredit the first South Americans if we downplayed the sophistication of their society and described them as people with little or no cultural sophistication. Although scatters of stone tools and bones are often the sole remnants of life many thousands of years ago, the early foragers were knowledgeable and flexible, shared social values and goals, had ethics and principles of belief, and practiced ritual and ceremony.

REFERENCES

- Ardila, Gerardo and Gustavo Politis, 1989, Nuevos datos para un viejo problema: investigación y discusión en torno del poblamiento de America del Sur. *Revista de Museo del Oro* 23: 2–45.
- Binford, Lewis, 1980, Willow smoke and dog's tails: hunter-gatherer site systems and archeological site formation. *American Antiquity* 45: 4–20.
- Boguchi, Peter, 1999, *The Origins of Human Society*. Blackwell Publishers, Oxford.
- Bryan, Alan L., 1973, Paleoenvironments and cultural diversity in Late Pleistocene South America. *Quaternary Research* 3: 237–256.
- and Ruth Gruhn, 2003, Some difficulties in modeling the original peopling of the Americas. *Quaternary International* 109–110: 175–179.
- Chauchat, Claude, 1992, *Prehistoire de la Cote Nord du Perou: Le Paijanien de Cupisnique*. CNRS Editions, Paris.
- Clapperton, Claude, 1993, *Quaternary Geology and Geomorphology of South America*. Elsevier, Amsterdam.
- Dillehay, Tom, 1999, The Late Pleistocene cultures of South America. *Evolutionary Anthropology* 7 (6): 206–216.
- , 2000, *The Settlement of the Americas: A New Prehistory*. Basic Books, New York.
- , Jack Rossen, Greg Maggard, Kary Stackekback and Patricia Netherly, 2003, Localization and possible social aggregation in the Late Pleistocene and Early Holocene on the north coast of Peru. *Quaternary International* 109–110: 3–11.
- Kelly, Robert, 1995, *The Foraging Spectrum: Diversity in Hunter-Gather Lifeways*. Smithsonian Institution Press, Washington, D.C.
- Lavallée, Daniele, 2000, *The First South Americans*. University of Utah Press, Salt Lake City.
- Lynch, Tom, 1990, Glacial-age man in South America: a critical review. *American Antiquity* 55: 12–36.
- Mellars, Paul, 1976, Fire ecology, animal populations and man: a study of some ecological relationships in prehistory. *Proceedings of the Prehistoric Society* 42: 15–45.
- Merriwether, Andrew D., 2002, A mitochondrial perspective on the peopling of the New World. In *The First Americans. The Pleistocene Colonization of the New World*, edited by Nina Nablonski, pp. 295–310. Memoirs of the California Academy of Sciences, Number 27. San Francisco.
- Meltzer, David, 2004, Peopling of North America. *Developments in Quaternary Science* 1: 539–563.
- Mills, Barbara, 1986, Prescribed burning and hunter-gatherer subsistence systems. *Haliksa's, UNM Contributions to Anthropology* 5: 1–26.
- Neves, Walter, Rolando Gonzalez-Jose, Mark Hubbes, Renato Kipnis, Astolfo Araujo, and Oldemar Blasi, 2005, Early Holocene human skeletal remains from Cerca Grande, Lagoa Santa, central Brazil, and the origins of the first Americans. *World Archaeology* 36: 479–501.
- Piperno, Dolores R. and Karen E. Stothert, 2003, Phytolith evidence for Early Holocene *Cucurbita* domestication in southwest Ecuador. *Science* 299: 1054–1057.
- Pucciarelli, Hector, Marina Sardi, José Jiménez López, and Carlos Serrano Sánchez, 2003, Early peopling and evolutionary diversification of South America. *Quaternary International* 109–110: 123–132.
- Salemme, Mónica and Laura Miotti (eds.), 2003, South America: long and winding roads for the first Americans at the Pleistocene/Holocene transition. *Quaternary International* 109–110: 1–179.
- Schurr, Ted, 2004, Molecular genetic diversity in Siberians and Native Americans suggests an early colonization of the New World. In *Entering America: Northeast Asia and Beringia Before the Last Glacial Maximum*, edited by David Madsen, pp. 320–341. University of Utah Press, Salt Lake City.
- Stothert, Karen E., Dolores R. Piperno, and Thomas Andres, 2003, Terminal Pleistocene/Early Holocene human adaptation in coastal Ecuador. *Quaternary International* 109–110: 23–43.
- Woodburn, James, 1982, Egalitarian societies. *Man* 17: 431–451.

Chinchorro Culture: Pioneers of the Coast of the Atacama Desert

BERNARDO T. ARRIAZA,
VIVIEN G. STANDEN, VICKI CASSMAN,
AND CALOGERO M. SANTORO

INTRODUCTION

The Atacama Desert is an inhospitable region with few fresh water resources. Therefore it is remarkable that people settled in this area 10,000–11,000 years ago and quickly became highly skilled fisher folk. Reliance on marine resources allowed them not only to endure the harsh conditions of the desert, but also to adopt a sedentary way of life. It is even more intriguing that about 7,000 years ago some of these groups, those we call the Chinchorros, began to mummify their dead in a sophisticated and evocative manner — an intriguing mortuary practice that persisted for nearly four thousand years.

The Chinchorros were the earliest preceramic fisher-hunter-gatherer people to inhabit the Atacama Desert shore. They are named after a beach in Arica, which yielded hundreds of mummies in the early 1900s with the discoveries of Max Uhle. Chinchorro archeology has come a long way since Uhle's initial work. Early studies focused on chronology, but we are now focusing on evolutionary reconstruction, human diseases, population genetics, diet, and the social meaning of Chinchorro mortuary practices. In this chapter, we present the culture history of the circumstances and events that allowed for the early settlement of the Atacama coast and we explain the unique Chinchorro mummification practices.

THE ECOLOGICAL TRIAD: DESERT, OCEAN, AND SMALL RIVERS

The Atacama Desert coast, which receives no rainfall at all, is where the Chinchorros chose to live. This desert stretches for about 1,500 km along the shores from southern Peru (Ilo, ca. latitude 18°S) to Copiapó in northern Chile (ca. latitude 27° S). The Atacama Desert

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

varies gradually in width, from north to south, from a few kilometers to about 150 km. The extreme dryness of this environment is a product of the crosswinds from the Pacific Ocean pushing the coastal humidity up into the Andes Mountains. However, some unusual areas like the mining village of Paposo (ca. 25° S), south of the Atacama, with its tall coastal mountains, block the rise of the coastal humidity creating a humid microclimate, resulting in a thick coastal fog. The fog or even light rain (locally called *garua* or *camanchaca*) can allow for the formation of relatively lush vegetation (*lomas*) with grasses and cactus, which attracts lizards, rodents, birds, and camelids. Isolated humid microclimates have been reported for prehispanic coastal environments, for instance in southern Peru as well, but these were rare and far between. Despite the aridity, the Atacama region has a diverse coastal geography, ranging from dry areas with steep cliffs to tiny swampy estuaries.

How and why did Chinchorro people choose to settle in such a dramatic and harsh environment? There is growing evidence that ancient people settled by the coast early and rapidly. Many early sites have been discovered along the coast, from north to south: Quebradas Tacahuay and Jaguay, the Ring site, Quebrada Los Burros in Peru, dating to late Pleistocene and early Holocene epochs (ca. 11,000–9000 BC), and further south along the Chilean coast are the sites of Acha and Las Conchas, dating to the early Holocene (ca. 8000–6000 BC) (Arriaza 1995; Llagostera 1992; Sandweiss 2003; Sandweiss et al. 1998; Wise 1999). Paleo-environmental reconstructions indicate more water resources than today (DeFrance and Humire 2004; Latorre et al. 2003; Lavallée 2000; Lavallée et al. 1999; Núñez and Grosjean 1994; Sandweiss 2003; Sandweiss et al. 1998) which facilitated animal diversity and human survival to some extent, but it was not a striking difference compared to modern conditions.

Settlement of the Atacama Desert coast was possible for two main reasons. First, small rivers carry run-off water from highland rain and snowmelt, and these cut through the desert at widespread intervals, forming narrow gorges and rivers, which drain to the Pacific Ocean. This creates patchy areas of plants and wildlife along the desert and particularly near the drainages. Such oases provided small hospitable and more varied environments for small groups of early humans to exploit. In addition, the geomorphology of the region provided occasional springs. Even today, local farmers tap aquifers along the valleys for agricultural purposes. Where fresh water accumulates cattails, totora reeds and grasses flourish, providing easy to collect terrestrial resources and raw materials (plants, birds, eggs, river shrimp, combustible materials, and even wood) (Arriaza 1995; Bird 1943; Llagostera 1992; Muñoz, Arriaza and Aufderheide 1993; Núñez 1983; Schiappacasse and Niemeyer 1984).

The second variable that allowed for early occupation was the bounty of the Pacific Ocean. The rich and diverse biomass generated an ever-present set of marine resources with seaweed, fish, mollusks, marine birds, sea mammals, and even whales. Thus, it was the combination of small and patchy fresh water resources and the bounty of the Pacific Ocean that allowed early hunter-gatherers and fisher folk to survive and even flourish in this harsh region.

However, movement along the coast was difficult. The shore was rocky and rugged with cliffs common. Instead, early fisher folk explored the area by walking along the top of the coastal cordillera. Occasional beaches and harvesting grounds provided haven to prehistoric explorers.

Likely greater highland precipitation and de-glaciation allowed a more abundant and permanent water flow toward the Pacific slopes of the Andes, as compared to the present day chronic hyper-arid climate. In addition, coastal temperatures were, possibly, cooler

than today. Unfortunately, as pointed out by Sandweiss (2003), there are no actual paleoclimatic sequential records for the Atacama coastal desert. Most data come from inland studies where better paleo records are present. Fossil rodent middens (2,400–3,200 masl) and wetland deposits (2,500–2,700 masl) near the Salar de Atacama in the central Atacama (ca. latitude 22–24°S) showed there was a wet phase from 5000 to 1500 BC (Núñez, Grosjean, and Cartagena 2002; Sandweiss 2003). At mid-Holocene times when Chinchorro artificial mummification was present, there was a wet phase on the Pacific slope of the Andes.

The cyclical El Niño phenomenon, still a factor today in worldwide weather patterns, also played a major role during the early Holocene that created variations in water temperatures that were generally warmer. However, after 3000 BC the water temperature became cooler again. Even today (2004–05), there are cyclical variations, with plagues of jellyfish and other warm water species along the northern Chilean coast, species that were uncommon only a year ago.

In prehistoric times, such environmental variation may have created new resources to exploit, while others diminished. The presence of large shell middens and cemeteries suggests that harvesting was plentiful at many locations like Quiani, Playa Chinchorro-Las Machas, Caleta Vitor, Quebrada de Camarones, and Pisagua Viejo (Figures 3.1, 3.2). Their primary food was mollusks such as *Concholepas concholepas* (scallops) and *Fissurella* spp. (mussels), fish, and pelicans. Mollusks were so plentiful that the early inhabitants left many large shell mounds along the coast of modern Peru and Chile. In addition, there is evidence that they hunted wild camelids and marine mammals such as sea lions. The small rivers also provided totora reeds to make cords, basketry, clothes and twined mats.

A SEDENTARY LIFE STYLE

The traditional portrayal of early Chinchorro populations is that of highly mobile groups. However, there is growing bioarchaeological evidence that indicates they had a year-round occupation on the coast rather than seasonal occupation (see Arriaza 1995; Standen 1997). Their diet, reconstructed using bone chemistry analysis, indicates heavy exploitation of maritime resources and they suffered from maritime parasites and a common cold water-related ear pathology called auditory exostosis. Their tool kit was maritime. They generated extensive shell middens along the coast and their cemeteries had long occupations, which all point to a year-round maritime subsistence. Recent studies by Aufderheide et al. (2004) found that the Chinchorros suffered from Chagas disease. This disease was associated with endemic reduvid bugs that live alongside humans within their huts and shelters. If the Chinchorros were highly mobile, Chagas disease would not have affected them. Although they were sedentary, evidence shows that they did occasionally travel to inland oases, such as Pampa del Tamarugal basin, south of Arica, Tiliviche and Aragón (Núñez 1983; Núñez and Zlatar 1980), which are located between 2 and 40 km into the valley, to gather lithic raw materials and to collect river resources like crayfish.

This early preceramic sedentary way of life based on a maritime subsistence rather than agriculture was relatively unique. Though this was their preferred mode of subsistence, there were health consequences for this choice. For example, the consumption of raw fish predisposed the Chinchorros to acquisition of tapeworm that led to anemia. Parasite ova found in the gut of mummies, and porotic hyperostosis and cribra orbitalia in their cranial bones testify to this. Also, continuous exposure to cold wind and water caused ear irritation and bony growth in the ear canal (external auditory exostosis). This mechanical blockage certainly decreased

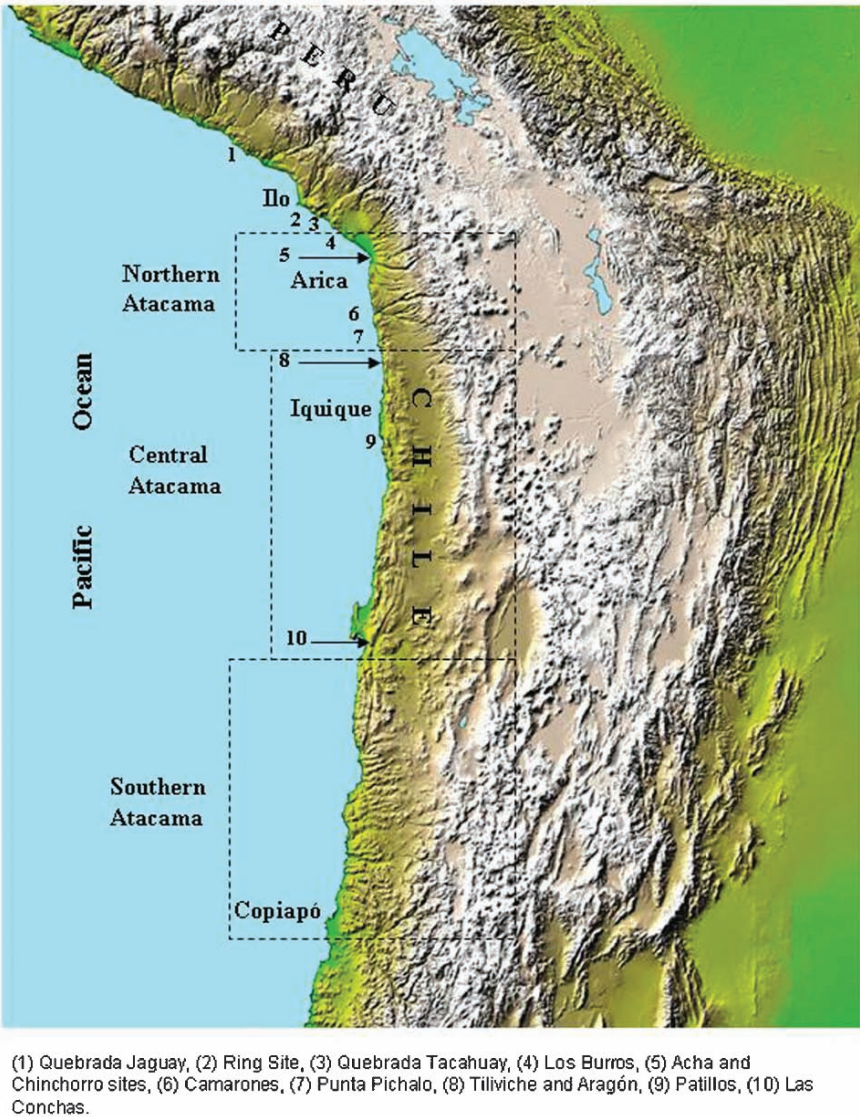


Figure 3.1. Map for locating sites mentioned in text. (Alvaro Romero)

their hearing capabilities. Men suffered from lower back problems (spondylolysis) likely caused by their hunting and maritime physical activities, while females had crushed vertebra, most certainly the consequences of increased fertility and osteoporosis or bone density loss. Domestic violence was common. Chinchorro females often had arm fractures characteristic of attempts to block a blow to the head. Males in contrast quarreled with bare hands or stones as their broken noses and small round cranial fractures indicated (Standen and Arriaza 2000). Sometimes violence escalated and harpoons became lethal weapons; at least one young male had a lithic point embedded in his spine (Figure 3.3).



Figure 3.2. Caleta Camarones. (Bernardo Arriaza)

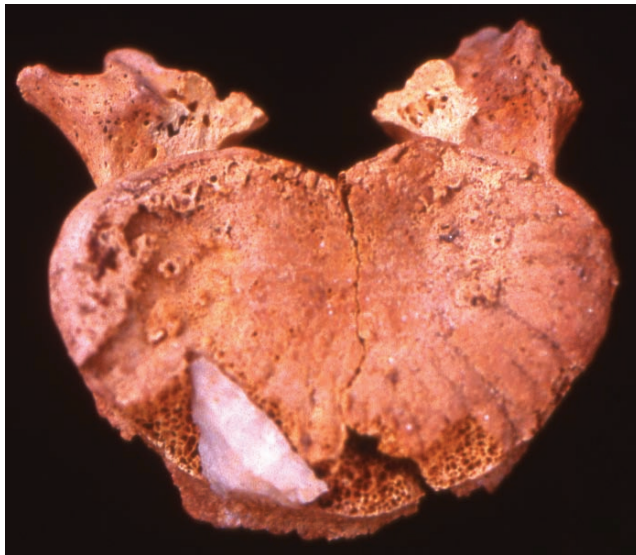


Figure 3.3. Human vertebrae with lithic point. (Bernardo Arriaza)

Another stress marker was a high rate of lower leg infections resembling treponematoses (a type of non-venereal syphilis). Arriaza (1995) postulated that these maladies were infections acquired during the mummification process. Handling infected corpses could have been an occupational hazard of the mummy makers and their apprentices, unknowingly

increasing disease transmission to the rest of the population. Furthermore, sedentary living could have increased the risk and spread of infectious diseases. In support of this position is evidence of decreasing treponematosi, as complex mummification practices faded away.

BURIALS

Classic Chinchorro burials, e.g., those with artificial mummification, represent secondary and collective interment of bodies. Burials lying next to one another are often labeled “a family” as if the mummies represented a nuclear family (father, mother, and children). However, our analyses of sex, age and burial variability within various Chinchorro sites indicates otherwise (Standen 1997). Burial internments varied from three to nine bodies neatly arranged in a row. Some group burials only had adult males and infants and no females; other cases included two or three women, infants, and adult males. In addition, there were infant and juvenile arrangements. Thus, the term family is not appropriate; the term cluster is more generic, and recommended instead. Certainly, given the proposition that these were small groups of fisher folk or bands, it was likely there was a close family relation between buried individuals. The type of Chinchorro marriage pattern is unknown, but extended family households would be most likely. Moreover, there is a tendency for those buried together to receive similar mummification treatment regardless of age and sex. This is particularly true for the styles referred to as black and red mummies (see below).

GRAVE GOODS

Chinchorro burials had few grave goods. They started to become common about 2000 to 1500 BC with an average of two objects per grave. Some were harpoons made of wood and bone, and others were atlatls to hunt land and sea mammals. Other tools were related to gathering tasks such as sea mammal ribs for prying open shellfish and reed baskets to collect shellfish. Fishing gear was found as well, represented by fishhooks made of cactus needles, fishing lines made of reeds and cotton, stone sinkers, bone and shell hooks (Standen 1997). Other grave goods included bone necklaces, and marine shells or small leather bags with colored pigments, and small vegetal brushes likely used to paint the bodies. In addition, there were bones of pelicans, fish, and marine mammals. Bird skins sewn together with cactus needles and vegetal threads wrapped some of the bodies as funerary shrouds.

Of all grave goods found with Chinchorro mummies, the most common was the harpoon. Interestingly, some individuals have harpoons and lithic points in their hands, as if they were ready to hunt in the afterlife. In contrast, fishing and gathering artifacts were less common. Perhaps this implies that hunting marine mammals was a more prestigious and important activity within these communities.

There were some sex differences in the distribution of the grave goods. Harpoon shafts and tips were common with adult males, and harpoon tips (the detachable part) were common to both adult men and women. In contrast, women had fishing artifacts (hooks and fishing lines). Artifacts for gathering (implements for prying and reed baskets) were common to both sexes of all ages, perhaps reflecting a less dangerous and more routine task undertaken by all Chinchorros.

In addition, reed brushes were commonly found with women. The women likely used the brushes for painting bodies (both living and mummified). Given the sex dis-

tribution of these tools, perhaps females were in charge of caring for the bodies, such as painting or cleaning them. The other grave goods mentioned appeared randomly distributed.

Another element of personal adornment included headbands of painted red reeds or camelid fiber cords in natural colors wrapped many times around the head. This was common to all ages and both sexes. These headbands also played a role in the intentional deformation of the head, which took a circular shape. This cultural practice started about 2000 BC.

THE MUMMIES

The Chinchorros were preceramic fisher folk with a simple tool technology, but Arriaza (1995) and Arriaza and Standen (2002) have pointed out that the process of intentionally preparing their dead was one of their most remarkable achievements. The Chinchorros transformed their dead into highly artistic mortuary icons, epitomized by the so-called black and red mummies. It seems their mummification practice started in the Camarones Valley about 5050 BC and spread north and south from there. The ancient tradition is one of the oldest in the world, and it lasted for several millennia, declining about 1700 BC.

It was a coastal cultural phenomenon from Ilo in Peru to perhaps Antofagasta in northern Chile. However, the cultural core of this practice was Arica-Camarones. The Chinchorros manipulated their dead in various ways, and styles change through time. The most common classification system used today to describe these mummies is the one proposed by Arriaza (1995) who divided them into black, red, bandaged, and mud-coated mummies (Figures 3.4, 3.5). The black, red, and bandaged mummies are subtypes of the complex preparation as described by Uhle (1919). Recently, Llagostera (2003) added another variation: corded mummies or mummies wrapped in reed cords as seen in the Camarones 15 and Patillos sites. The styles of mummification changed with time and region from black to red and from red to corded techniques.

The oldest intentionally prepared mummies were children from Camarones. Unfortunately, their mummies are very fragmented (Schiappacasse and Niemeyer 1984). Nevertheless, the black mummies are the oldest and most elaborate starting at Camarones 14, around 5000 BC, and declining around 2800 BC (Maderas Enco site). Sites containing black mummies include Camarones 17 and various Arica sites (Chinchorro, Maderas Enco and Playa Miller). They are commonly buried in groups of 4 to 6 individuals (Arriaza 1995; Aufderheide, Muñoz, and Arriaza 1993; Standen 1997) (Figures 3.4, 3.5).

HOW WERE THE BODIES MUMMIFIED?

Black mummies were the result of secondary burials. The morticians buried the bodies, likely in a swampy area, subsequently exhuming them to clean the bones and remaining flesh. They removed the brain and organs of the trunk and replaced these with grasses and clay. Later, cranial bones and the entire skeleton were re-articulated. The skeletal structure was reinforced and secured with thin wooden poles, running from the head to the ankles, and tied with reed cords. This inner structure was modeled with gray clay. Sexual organs were modeled as well. This reshaping brought back some of the original form and sex of the deceased, now as an anthropomorphic gray effigy. The morticians worked meticulously



Figure 3.4. Chinchorro black mummy. (Bernardo Arriaza)



Figure 3.5. Chinchorro red mummy. (Bernardo Arriaza)

and must have possessed great anatomical knowledge since bones are in proper anatomical positions. Then they proceeded to reattach whatever original skin was left and patched the body with animal (seal or sea lion) skin. In most cases the facial skin appears to be its own, with slits for ears, nostrils and eyes—thus facial skin was likely removed initially before the primary burial. The head was adorned with a short, black-haired wig. As a final touch, morticians painted the gray body with a thin layer of black-blue manganese paste; hence the reason for the title “black mummy” (Arriaza 1995; Arriaza and Standen 2002: 29).

Generally speaking, the red mummies were simpler than the black, yet they were visually more powerful. The morticians made incisions and sutures at the shoulders, groin,

knees, and ankles in order to remove organs and part of the muscles. The head was detached from the trunk. They removed all inner organs and dried the body's cavities, likely with glowing coals and ashes. Similar to the black style, the morticians used long wooden poles to reinforce the body. In this case, however, the sticks were slipped under the skin through the arms, legs, and spine. The sticks provided support and rigidity. To gain back the body's volume, they stuffed the empty anatomical cavities with feathers from sea birds (pelicans and seagulls), different types of soils and camelid hair (guanacos or llamas). The head was also stuffed, however this time they took additional steps by ornamenting it with a 60 cm-long wig made from tresses of human hair. This wig was secured to the head with a thick paste of black manganese. The preparers gave the face a life-like appearance by emphasizing open eyes and mouth. Afterwards, the morticians painted the entire body with bright red ochre, except the face and wig. Morticians and shamans must have been very proud of their work, a powerful mortuary icon: a red body with a black face, open eyes, gleaming white teeth, and a long flowing wig. This red style first appeared around 2000 BC and continued for almost 500 years (Arriaza 1995; Arriaza and Standen 2002).

Bandaged and corded mummies were a variation on the red mummies except that they replaced skin, now in strips, with the appearance of bandages. They also had sticks for reinforcement and long wigs. These mummies date to about 2000 BC. The corded mummies represent bodies wrapped with thin reed cords, as found in Camarones 15, and date to about 1000 BC.

The mud-coated mummies were naturally dried bodies covered from head to toes with a thick layer of mud, possibly prepared with a mixture of earth, water, and an adhesive of unknown origin (Arriaza and Standen 2002). Their antiquity is unclear, but some date to 1700 BC.

TWINED MATS

Most remaining Chinchorro textiles (dated to approximately 7000–1000 BC) are twined vegetable fiber mats/shrouds measuring up to approximately 2×1.5 m. Though large in size these reed blankets were not loom woven, but made by hand manipulations. The Chinchorros twined pairs of reed yarns or wefts binding sets of vertical elements or warps, to make mats. In later periods (approximately 2000–1000 BC), the Chinchorros made twined mats using camelid fibers, but these are rare.

Even though the Chinchorro mummification practices changed drastically through time with natural, black, red, bandage, and mud-coated mummies, the twined textile covers remained an integral and relatively unchanging feature of the mummy bundle. The tight wrapping of the mummies added to their preservation and integrity.

The reed wrapping started early. The Acha body, from 7000 BC, had a painted twined mat/blanket. Though twined mats have received very little attention, they are the most enduring Chinchorro characteristic. In other words, the presence of a mat shroud is a constant and diagnostic feature of Chinchorro culture. Usually a mat wrapped a single individual; however, there are examples of very large mats covering a group of Chinchorro individuals (Muñoz, Arriaza, and Aufderheide 1993: 115–116). The same is true centuries later for the Acha 3 site and bodies. There, three bodies have a painted mat covering them plus a camelid fur under the mat (Standen and Santoro 2004). In brief, mortuary mat shrouds were typical throughout the Chinchorro period and continued to be common in the culture known as Quiani (1500 BC) that marks a transition to a new cultural era based on new mortuary

traditions. During Quiani times, the dead were buried in a semi-flexed position and artificial mummification was no longer practiced. In comparison, later agropastoral cultures, with distinctive flexed burials, used woven cloth of camelid yarns for mortuary shrouds.

Even today, plant fiber sources of totora and junquillos (reeds) are found in the deltas of the two rivers that flowed through the Lluta and Azapa valleys into the Pacific Ocean. With the help of botanist Eliana Belmonte we identified various species found today: *Scirpus americanus* var. *ordalus* (Cyperaceae), *Scirpus americanus*, variety with a triangular stem (Cyperaceae), *Scirpus americanus* var. *monofilus* (Cyperaceae), *Equisetum giganteum* (Equisetaceae), *Cortaderia* sp. (Gramineae), *Distichlis* sp. (Gramineae), and *Polypogon* (another Gramineae). From comparative microscopy, it appears the Chinchorros used one of the *Scirpus* varieties.

The Chinchorros sometimes painted their shrouds with red and yellow ochre, as well as manganese pigment for black. In addition, the Chinchorros decorated their shrouds with embroidery in brown camelid yarns along the edges and as colorful linear geometric symbols on the surfaces. They often used a wrapping technique.

If one tries to imagine Chinchorro society, one has to acknowledge the dual nature of matting and cordage. These organic materials were a vital resource for practical and symbolic uses in the everyday lives of the Chinchorros. These materials clothed, decorated the body, sheltered households, and provided nets and fishing lines for gathering marine resources to eat. Within the mummies themselves, cordage replaced human muscles and ligaments, and the twined mats provided the vehicle and environment for transporting or holding the body for the journey to the other world.

THE PEOPLE

The Chinchorros were short but stocky with powerful arms. Their height was about 1.5 m for females and 1.6 m. for males. They were expert craftspeople. Their tool kits included fishhooks made of bone, shells and cactus needles, composite fishhooks, lines, elongated stone sinkers, bone prying tools (chopes), lithic knives, scrapers, awls and bifacial points. To kill large animals they used harpoons and throwing sticks with atlatls (Figure 3.6). To collect mollusks they wove small net bags.

Clothing was minimal; males wore at most a small breech cloth and females grass skirts. There is a tendency for females to be buried wearing fringed skirts made with grass or camelid fibers. In some cases, mummies had up to three skirts. Sometimes even fetuses, newborns, and anthropomorphic clay statuettes resembling the mummies have fringed skirts. Many mummies, however, do not have clothes. It is therefore likely that the Chinchorros wore little during daily activities.

Apparently, they wore their hair in various lengths, but without braiding it. Sometimes they ornamented themselves with small polychrome headbands made of cords, in addition to shell and bone necklaces. There is no direct evidence, but it is imaginable that they painted the bodies of the living too, since it was a vital element of the death ritual.

SOCIAL MILIEU

It seems remarkable that the Chinchorro people, though unfamiliar with complex tools and artifacts such as ceramic vessels, metal knives, or looms, mastered the art of mummifying the dead. Normally, we expect to see complex mortuary practices in politically

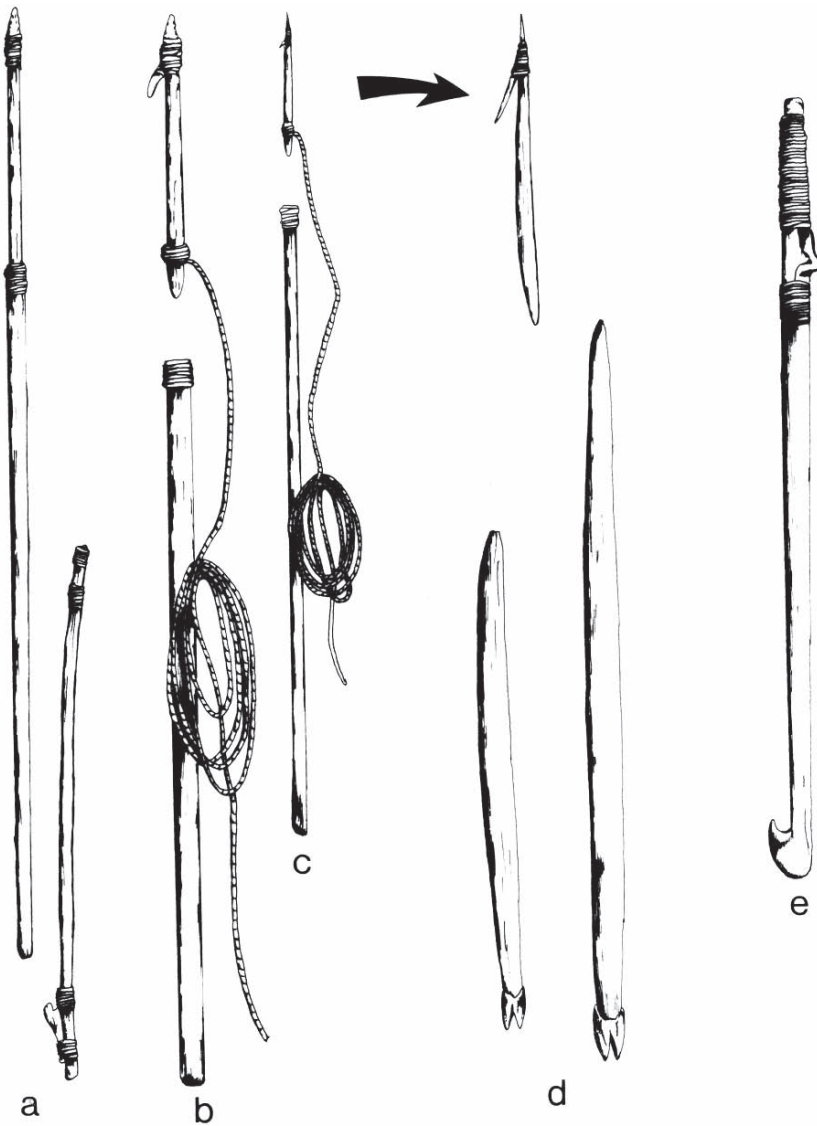


Figure 3.6. Chinchorro artifacts. (Bernardo Arriaza)

complex societies such as the Egyptians or Incas for example. The long lasting (nearly four millennia) Chinchorro practice was obviously central to their religious experience and their human existence. The Chinchorros left no written records so the central question about why they developed this practice is open to discussion. Children and adults of both sexes were mummified. In 2001, we debated whether social differentiation could be one explanation, where only a faction of the community, such as higher-ranking individuals, was mummified (Arriaza et al. 2001). However, only four bodies with natural mummification, out of a total of thirty-six, cluster within the artificial mummy period (5000–1700 BC). If artificial mummification honored the elite, one would expect that bodies with complex

artificial mummification would be in the minority, but this is not the case. Belief in the afterlife, religion, and social issues are certainly at play.

Mummification, in a way, brought back the deceased individual, not as a decomposing and smelly body, or even a dehydrated body, but rather as an effigy pleasant to gaze upon. As such, mummification provided a canvas to display the body as a religious or family icon, similar to viewing embalmed bodies in a wake today. As Huntington and Metcalf (1985: 63) have suggested: “The corpse is feared because, until its reconstruction in the beyond is complete, part of its spiritual essence remains behind, where it menaces the living with threat of further death”. Arriaza and Standen (2002: 40–41) observe that many cultures believe “the soul of the deceased runs the risk of losing its existence if the body decomposes, or the living would lose contact with the soul of the deceased should the body decompose”.

The death of a loved one, or an important person, creates social shock and uncertainty. What is going to happen to the cadaver? Who is going to take care of it? Chinchorro people minimized social uncertainties by transforming the dead into a durable icon thanks to the morticians. After accomplishing the mummification, Chinchorro mourners likely feasted with the dead, just as the Incas did thousands of years later parading mummified ancestors, giving them drink, food, clothes, and other offerings. The mummy represents a new beginning, continuity of life and stability, the dead and living become part of a new social intercourse.

Regarding the origin of this unusual mortuary practice Uhle (1919) believed that artificial mummification had its roots in Peru, and Rivera (1975) postulated a jungle origin for this practice. Arriaza (1995) and Standen and Santoro 2004 (among others) have postulated a local origin, in the Camarones area.

Why the Chinchorros went the extra mile to mummify their dead is debatable, but that they invested a great deal of energy in mummifying their dead is unquestionable. Our previous studies have pointed out that these mummies are a unique phenomenon in the world for various reasons. We now know the following:

- The mummies were produced by a preceramic fishing culture whose antiquity pre-dates the advent of agriculture, pottery, metallurgy, the loom and socio-political complexity.
- Chinchorro culture has a large geographic territory and long chronology.
- These mummies represent the earliest evidence of religious icons in the Andean area and a complex mortuary practice for preceramic people.
- Chinchorro morticians had anatomical and technical knowledge, and undertook careful planning to accomplish their elaborate mummification process.
- The mummies provide clues to decipher ideological concepts of these early fishing populations. Due to the nature of the preceramic record (minimal crafts and grave goods), often our studies are biased toward subsistence strategies and mobility.

CONCLUSION

In summary, Chinchorro Culture represents the pioneers of the Atacama coast. Chinchorros’ most remarkable achievement was the intentional mummification of the dead beginning about 5000 BC and declining about 1700 BC. The remarkable transformations of the dead into polychrome effigies using simple technologies and materials locally available to

them have endured the millennia, and still inspire awe. In addition, as we learn more about this culture, we realize that they defy the stereotype of early mobile hunter-gatherers and simple societies because the Chinchorros were sedentary, due to the abundance of marine resources. The implications of early village life in the Atacama desert region provides many new potential models yet to be tested. Although we have been able to piece together a clearer picture of who the Chinchorros were, there is still much to be learned about their complex rituals and the reasons behind their unique choices for living and dealing with the afterlife along the Atacama coast. Chinchorro bioarchaeology is opening a door to a different reconstruction of the past, including ecological and humanistic views.

REFERENCES

- Arriaza, Bernardo T., 1995, *Beyond Death, The Chinchorro Mummies of Ancient Chile*. Smithsonian Institution Press, Washington, D.C.
- and Vivien G. Standen, 2002, *Momias, Muerte y Ritos Ancestrales*. Universidad de Tarapacá, Chile.
- , Matt Doubrava, Vivien G. Standen, and Herbert Haas, 2001, Chinchorro Mortuary Styles: Evolution or Social Status. Paper presented at Annual Meeting of the Society for American Archaeology. New Orleans. May 18–22.
- Aufderheide, Arthur, Iván Muñoz and Bernardo T. Arriaza, 1993, Seven Chinchorro mummies and the prehistory of northern Chile. *American Journal of Physical Anthropology* 91: 189–201.
- , W. Salo, M. Madden, J. Streitz, Jane Buikstra, Felipe Guhl, Bernardo T. Arriaza, C. Renier, L. Wittmers, G. Fornaciari, and Marvin Allison, 2004, Chagas disease: 9000 years and counting. *Proceedings of the National Academy of Science* 101 (7): 2034–2039.
- Bird, Junius, 1943, *Excavations in Northern Chile*. Anthropological Papers, Vol. 38, Pt. 4. American Museum of Natural History, New York.
- DeFrance, Susan D. and Adán Humire, 2004, Quebrada Tacahuay: un sitio marítima del Pleistoceno Tardío en la costa sur de Perú. *Chungara. Revista de Antropología Chilena* 36: 257–278.
- Grosjean, Martin and Lautaro Núñez, 1994, Late Glacial, Early and Middle Holocene environments, human occupations and resource use in the Atacama (Northern Chile). *Geoarchaeology* 9: 271–286.
- Huntington, Richard and Peter Metcalf, 1985, *Celebrations of Death*. Cambridge University Press, New York.
- Latorre, C., J. L. Betancourt, K.A. Rylander, J. Quade, and O. Matthei, 2003, A vegetation history from the arid prepuna of northern Chile (22° 23') over the last 13,500 years. *Palaeogeography, Palaeoclimatology, Palaeoecology* 194: 223–246.
- Lavallée, Danièle, 2000, *The First South Americans. The Peopling of a Continent from the Earliest Evidence to High Culture*, translated by Paul G. Bahn. The University of Utah Press, Salt Lake City.
- , Philippe Béarez, Alexandre Chevalier, Michèle Julien, Pierre Usselman, and Michel Fontugne, 1999, Paleoambiente y ocupación prehistórica del litoral extremo-sur del Perú: las ocupaciones del Arcaico en la Quebrada de los Burros y alrededores (Tacna, Perú). In *El Periodo Arcaico en el Perú: Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp. 393–416. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.
- Llagostera, Agustín, 1992, Early occupations and the emergence of fishermen on the Pacific coast of South America. *Andean Past* 3: 87–109.
- , 2003, Patrones de momificación Chinchorro en las colecciones Uhle y Nielsen. *Chungara. Revista de Antropología Chilena* 35 (1): 5–22.
- Muñoz, Ivan, Bernardo T. Arriaza and Arthur Aufderheide (eds.), 1993, *Acha-2 y los Orígenes del Poblamiento Humano en Arica*. Universidad de Tarapacá.
- Núñez, Lautaro, 1983, Paleoindian and Archaic cultural periods in the arid and semiarid regions of northern Chile. *Advances in World Archaeology* 2: 161–222.
- and Martin Grosjean, 1994, Cambios ambientales Pleistocénico-Holocénicos: ocupación humana y uso de recursos en la puna de Atacama (norte de Chile). *Estudios Atacameños* 11: 11–24.
- , Martin Grosjean, and Isabel Cartajena, 2002, Human occupations and climate change in the puna de Atacama, Chile. *Science* 298: 821–824.
- Núñez, Patricio and Vjera Zlatar, 1980, Coexistencia de comunidades recolectoras-cazadoras. *Actas del V Congreso Nacional de Arqueología Argentina* Tomo 1: 79–92.

- Rivera, Mario, 1975, Una hipótesis sobre movimientos poblacionales altiplánicos y transaltiplánicos a las costas del norte de Chile. *Chungara. Revista de Antropología Chilena* 5: 7–31.
- Sandweiss, Daniel H., 2003, Terminal Pleistocene through mid-Holocene archaeological sites as paleoclimatic archives for the Peruvian coast. *Paleogeography, Paleoclimatology, Paleoecology* 194: 23–40.
- _____, Heather McInnis, Richard L. Burger, Asunción Cano, Bernardino Ojeda, Rolando Paredes, María Carmen del Sandweiss, and Michael D. Glascock, 1998, Quebrada Jaguay: Early South American maritime adaptations. *Science* 281: 1830–1832.
- Schiappacasse, Virgilio and Hans Niemeyer, 1984, *Descripción y Análisis Interpretativo de un Sitio Arcaico Temprano en la Quebrada de Camarones*. Publicación Ocasional, No. 41. Museo Nacional de Historia Natural, Santiago.
- Standen, Vivien G. and Bernardo T. Arriaza, 2000, Trauma in the preceramic coastal populations of northern Chile: violence or occupational hazards. *American Journal of Physical Anthropology* 112 (2): 239–249.
- _____, 1997, Temprana complejidad funeraria en la cultura Chinchorro, norte de Chile. *Latin American Antiquity* 8: 134–156.
- _____, and Calogero M. Santoro, 2004, Patrón funerario Arcaico Temprano del sitio Acha-3 y su relación con Chinchorro (costa norte de Chile). *Latin American Antiquity* 15: 89–109.
- Uhle, Max, 1919, La arqueología de Arica y Tacna. *Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos* 3 (7–8): 1–48.
- Wise, Karen, 1999, Kilómetro 4 y la ocupación del período Arcaico en el área de Ilo, al sur de Perú. In *El Periodo Arcaico en el Perú: Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp. 335–363. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.

Early Occupations in the Southern Cone

LUIS ALBERTO BORRERO

INTRODUCTION

What is usually known as Patagonia and Tierra del Fuego, extends today over more than one million square kilometers. This extensive territory can be divided into North Patagonia, covering between 39°30' S and 44° S, South Patagonia, from 44° S to the Strait of Magellan (ca. 52° S) and Tierra del Fuego (ca. 52°–54° S). The available paleoclimatic information points to the existence of arid conditions at least since the end of the Pleistocene in most of extra-Andean continental Patagonia, which today is characterized by the presence of steppe (Figure 4.1). This steppe is dominated by *Stipa speciosa*, *S. humilis*, and a variety of shrubs, without much variation during the Holocene (Mancini 1998). After the retreat of the Pleistocene glaciers ca. 14,000 BP, a warmer trend was initiated, that was interrupted by a cold pulse around 11,000 BP. Warmer conditions returned afterwards (Markgraf 1993; Heusser 1994). Several lakes near the Cordillera had high stands of vegetation during the time when humans were dispersing into Patagonia. In all, southern South America was probably a better world to live in than the heavily glaciated territory of North America. Not only was the development of glaciers less extensive in South America, but the more maritime climate presented a less seasonal habitat. The human exploration and colonization of this large piece of land began in late Pleistocene times, starting at least 12,000 to 13,000 BP (Orquera 1987; Miotti 1996; Borrero and Franco 1997; Borrero and McEwan 1997), a time for which there is no climatic analogue in modern ecosystems [Note 1]. This chapter considers the data pertinent to the early peoples of Patagonia. Later prehistory is treated in Mena (1997).



Figure 4.1. Steppe environment. (Luis Alberto Borrero)

HUMAN REMAINS

Many claims have been made for a late Pleistocene antiquity of human remains. Mata-Molle, located in Northern Patagonia (Vignati 1957–59), lacks an archaeological context and was recently dated ca. 4500 BP (Fernández 1983). The other cases rested on physical associations with Pleistocene fauna. The remains of Cerro Sota, Cueva Lago Sofía 1 and Pali Aike, from the southern part of the continent were traditionally considered as late Pleistocene (Bird 1946, 1988; Turner 1992; Soto-Heim 1994). But, AMS dated three samples of human bones from Cerro Sota around 3900 BP (Hedges et al. 1992), and two samples from Cueva Lago Sofía 1 were dated around 4000 BP (Prieto 1991). All that is left from this lot, then, are the remains from Pali Aike, which clearly should be dated. A sample dated 8639 ± 450 BP (C-485) was made on mammal bones whose relationship to the human bones is unknown. A recent attempt was made to date the Pali Aike remains, but failed to find enough collagen, and only a minimum age of 7830 ± 60 BP (Beta-099066) was obtained (Neves et al. 1999: 261).

Five individuals recently recovered at Baño Nuevo, in Aisén, are associated with several radiocarbon dates of ca. 8000 BP, two of which were made on the bones of one of the skeletons. The individuals were covered with stones and deposited in a flexed position against the back wall of the cave (Mena and Reyes 1998).

At Epullan Cave, in north Patagonia, a total of four burials was recorded (Crivelli Montero et al. 1996). Redeposited charcoal found directly above one skeleton was dated 7900 ± 70 BP (Beta-44412), which is a maximum date for the burial. Another is dated by association ca. 9970 ± 100 BP (LP-213). Three of the skeletons were placed on beds of rocks or grass. Some were covered with stones in the same way as the historically known *chenques*.

All the skeletons were located near the rear end of the cave, especially the chenques. This is also the case with Baño Nuevo (Mena and Reyes 1998). Thus, it appears that one of the oldest modes of interment, which thus far is only recorded in caves (probably a result of sampling error), is covering the body with rocks. In later times that mode became dominant in Patagonia in open-air locations (Goñi and Barrientos 2000). This evidence runs counter to the previous claim that cremation was the oldest way of treating the dead in Patagonia.

Several studies with recent samples of skulls from Patagonia and Tierra del Fuego demonstrate important morphometric differences (Guichón et al. 1989–90), with some skeletons best described as being from non-Mongoloid stock (Lahr 1995: 190; Hernández et al. 1997). The study of mitochondrial DNA on human bones has just started, but helps support the inference that more than one population was involved in the peopling of America (Lalueza Fox 1996; see Chapter 2 in this volume). All this evidence runs counter to the model of strictly Mongoloid origins for the Americans.

NORTH PATAGONIA

North Patagonia is characterized by an arid climate, with a narrow band of forest near the Cordillera. The Patagonian steppe is located east of the Andes. The earliest evidence, in North Patagonia west of the Andes, is provided by two sites, Monte Verde and Marifilo 1, plus minimal evidence from other locations. This area is not usually included in Patagonia, but it is relevant for our understanding of the peopling process and will be mentioned briefly.

Monte Verde is an open-air site located near the Chinchihuapi Creek (Dillehay 1997). An accumulation of logs, bones, plants, cordage, fragments of hide and other organic remains, associated with a few lithic artifacts and other evidence was discovered. Three lanceolate projectile points, several bola stones, and other modified rocks were found, but most of the artifacts are made of wood. Faunal remains are minimal, only some mastodon bones (*Cuvieronius sensu* Casamiquela) and a single *Palaeolama* bone. The presence of non-local dirt embedded in some of the mastodon bones (Karathanasis 1997) suggests that they were collected from a carcass found elsewhere. Economically important plants, including wild potatoes and algae, are abundant. The chronology of the archaeological deposits, located above two sandy gravel-strewn stream beaches and below a peat layer, is supported by several dates with a mean around 12,500 BP (Dillehay and Pino 1997).

Not too far away is the Chinchihuapi site, also below a peat layer, dated 12,420 ± 130 BP (Beta-65842). Two flakes, one spheroid, and three wood artifacts were recovered in a test pit (Dillehay and Pino 1997: 49).

The Marifilo site, which was used later, about 10,190 ± 120 BP (Beta-164475), is also located in a forest environment. The small deer pudu (*Pudu pudu*), living in the forest, was the most important resource used by the earliest inhabitants of this site (Velásquez and Adán 2004). Small birds and mustelids are also present. In sum, Monte Verde, Marifilo, and perhaps Chinchihuapi testify to the importance of the forest in early human adaptations in South America. There are other findings in the region, such as the projectile points of Nochaco, and many places where mastodon bones were found, but no indication of association or even of a good recovery context exist.

East of the Andes the evidence comes from four caves, located not too far from the mountains. Chronologically, the occupations are restricted to the early Holocene. Cueva Trafal, Cueva Cuyín Manzano and El Trebol are situated in the forest-steppe ecotone, near the headwaters of the Limay River. Cueva Epullán Grande is in the steppe, some 100 km

east of the ecotone. Site El Trébol probably was in the forest, but close to the ecotone (Hajduk et al. 2004). The available palynological information suggests that the environmental panorama at the beginning of the Holocene was, with very few changes, similar to that prevalent today.

The initial occupations at Cueva Trafal are dated 9430 ± 230 BP (AC-2676) and 9285 ± 105 BP (GX-1711) (Crivelli Montero et al. 1993: 33). They indicate an ephemeral human presence. Unretouched flakes are the most abundant artifacts. No bifacial artifacts were found, but a few bifacial reduction flakes attest to their existence (Cúneo 1993: 165). Abundant fox (*Pseudalopex* sp.) remains and low frequencies of guanaco (*Lama guanicoe*) bones characterize the faunal assemblage (Figure 4.2), which is treated as indicative of the early human diet (Crivelli et al. 1993: 38). Since the faunal analysis is not yet published, this suggestion should be treated with reserve.

Above the initial occupations, the “Component 1-Trafal”, dated 7308 ± 285 BP (LP-8113) and 7850 ± 70 BP (LP-5133), was defined. It presents well-defined hearths, triangular projectile points and other lithics. Guanaco remains are important and the presence of *Lagidium* sp., fox and small rodents was noted.

The lower occupations of Cueva Cuyín Manzano, which are only partially published, were also ephemeral. They are dated 9320 ± 240 BP (KN-1432). Guanacos, foxes, and rodents are associated with end-scrapers and other lithics; no projectile points were found (Ceballos 1982).

The lower levels of Cueva Epullán Grande are dated between 9970 ± 100 BP (LP-213) and 7550 ± 100 BP (Beta-47401). Small hearths were found. Lithic artifacts were made of obsidian and basalt. Bifacial technology is important in the initial occupations of Epullán Grande (Crivelli Montero et al. 1996: 200).



Figure 4.2. Guanacos (*Lama guanicoe*) at Torres del Paine National Park, Chile. (Luis Alberto Borrero)

Guanaco remains are abundant. South American ostrich (cf. *Pterocnemia pennata*) bones present cut marks and are thermoaltered. The presence of egg shells was also recorded. Remains of several small mammals are present at the site. At Epullán Grande the exploitation of cacti, especially *Austrocactus* aff. *A. Bertinii* is documented starting ca. 7060 \pm 90 BP (Beta-41622) (Crivelli Montero et al. 1996: 188). Later in the sequence there is abundant proof of storage of this cacti. Finally, panels of wall engravings in the form of finger markings and incised lines were discovered on the lower walls of Epullán Grande Cave. They were covered by sediments dated between 9970 and ca. 7100 BP (Crivelli et al. 1996: 190).

Recently excavated, and only partially published, El Trébol produced a limited amount of lithics associated with bone fragments, teeth and dermal ossicles of *Mylodontinae* and a few fish and huemul (*Hippocamelus bisulcus*) bones. A fragment of a bifacial projectile point was also found. A cut mark was identified in one *Mylodontinae* ossicle, and other ossicles are burned. On that basis Hajduk et al. (2004: 727) suggest that their introduction to the site was the result of human exploitation. All the available evidence indicates that the inhabitants of the lower levels at El Trébol were related to far away places, perhaps away from the forests. There is no chronological information for this lower level (Hajduk et al. 2004).

During the late Holocene in northwest Patagonia, places located near the water sources were used repeatedly (Sanguinetti and Curzio 1996). Intensive exploitation of a variety of resources, including small mammals, birds, mollusks and plants is indicated (Borrero 1981; Crivelli Montero et al. 1993, 1996). Guanaco was consumed, but it appears that it did not play a central role because guanaco bones are not abundant, and when they are present, they are highly fragmented, suggesting intensive exploitation.

In locations closer to the Andes there is evidence—for example at Puerto Tranquilo, located on an island at Nahuel Huapi Lake (Hajduk et al. 2004: 716), the upper levels of El Trébol (Hajduk et al. 2004: 716) and other sites (Silveira 1999)—that indicates human presence in the Andean forests. This evidence is, when compared with that from the western side of the Andes, very late, mostly for the last 2,000 radiocarbon years.

SOUTH PATAGONIA

Extensive plateaus characterize South Patagonia, dominated by a steppe environment. The Andean range, with altitudes up to ca. 3,000 masl, constitutes the western limit (Figure 4.3). The plateau located south of the Middle Deseado Basin has seen significant stratigraphic research. An important locality is Cañadón las Cuevas at Estancia Los Toldos. It includes 14 caves and numerous rock shelters, many of them with stratified deposits and rock paintings. Stratigraphic work concentrated on Caves 2 and 3 (Menghin 1952; Cardich et al. 1973; Cardich and Flegenheimer 1978; Mansur-Franchomme 1983; Miotti 1998).

For years a single radiocarbon date of 12,600 \pm 500 BP, obtained in the 1970s from the lower level (Level 11) of Los Toldos 3, was cited as evidence for early human occupation (Cardich et al. 1973). The problem is that the date, which lacks a lab number, was made on dispersed flecks of charcoal. The association of this material with the artifacts was never clear. Apparently no effort was made to replicate that date. Moreover, the whole sequence is, when compared with the rest of Patagonia, slightly out of phase (Borrero 1989). Only new radiocarbon assays on materials with clear provenience from Los Toldos itself can be used to accept the chronology of that site.



Figure 4.3. The Andean range. (Luis Alberto Borrero)

Some 150 km south is the site Cueva El Ceibo 7 (Cardich et al. 1981–82). An assemblage said to be comparable to that of the lower level of Los Toldos 3 was also found. Bone remains include those of extinct horse, extinct camelid, *Lama* (*Vicugna*) *gracilis*, puma (*Puma concolor*), and probably guanaco. No radiocarbon date has been published, by the excavators, but Coronato and others mention a date of “ca. 9.5 ^{14}C ka” (Coronato et al. 1999: 88).

Level 11 is characterized by unifacial marginally retouched tools, most of which are side-scrapers. The absence of projectile points was emphasized and used as a variant of the argument for the existence of a Pre Projectile Point horizon. However, this absence is probably the result of the very small sample size. This level contains remains of extinct horse (*Hippidion saldiasi*) (Alberdi and Prado 2004), an extinct camelid (*Lama* [*Vicugna*] *gracilis*), and guanaco. Cut marks are not abundant. In reference to extinct horse, Laura Miotti reports that only molars and elements of the autopodium are present, all complete and without cut marks (Miotti 1998).

Cave 1 of Cerro Tres Tetas is located some 55 km north of El Ceibo (Paunero 1993–94). At Unit 5, which was sealed by a rock fall, two hearths were found, with radiocarbon dates between $11,560 \pm 140$ BP (LP-525) and $10,050 \pm 150$ (LP-781). No projectile points were found (Paunero 2000). Lithic technology is basically unifacial, but the presence of bifacial retouch was recorded. Several hundred artifacts were recovered at Unit 5, only 31 of which are instruments. End-scrapers, side-scrapers, knives and retouched flakes characterize the lithic assemblage (Paunero 1993–94). The raw material appears to be predominantly local, and is of very high quality. The faunal remains do not include Pleistocene mammals and are dominated by guanaco bones.

At El Puesto rockshelter (AEP1) in the locality of Piedra Museo, human occupations were radiocarbon dated between $12,890 \pm 90$ BP (AA-20125) and 9710 ± 105 BP (LP-859), with most of the dates falling around 11,000 BP (Miotti and Rabassa 2000); there were two fragments of projectile points. The shape and technology of these instruments suggest assignment to the Fell's Cave type, initially recorded by Junius Bird (1988) at Fell's Cave. End-scrapers and side-scrapers made on large flakes were also found, together with remains of guanaco, extinct horse, ground sloth, *Lama (Vicugna) gracilis* and South American ostriches (*Pterocnemia pennata* and *Rhea Americana*) (Miotti 1996). It must be noted that *Rhea Americana*, which was also recorded at Casa del Minero 1 (Paunero et al. 2004: 805), is not present in the area today.

At Los Toldos and several other sites a consistent association of triangular projectile points, large end-scrapers, and other artifacts were found and used to characterize a cultural unit known as Toldense. The butchered remains of *Lama (Vicugna) gracilis*, extinct horse, flightless birds, and guanaco were found associated with this industry at Los Toldos. The presence of extinct fauna in this layer was used as proof of a Holocene survival of megafauna, since the available age for this site is ca. 8800 BP. However, this judgement is based on a single radiocarbon date for which no lab number was provided and whose relationship with the megafauna is not reported. In fact, archaeological units comparable with those from the Toldense were found at several sites in South Patagonia, and never in association with extinct fauna (Gradín et al. 1976; Aguerre 1979). The best published evidence comes from the Río Pinturas, less than one hundred kilometers to the west of the plateau (Gradín et al. 1976, 1979). One of the most important sites is Cueva de las Manos, a site located over the Pinturas River (Gradín et al. 1979; Mengoni Goñalons and Silveira 1976). Wall paintings that include hand negatives and depictions of guanacos made this site world famous. The lower occupations are dated 9320 ± 90 BP (CSIC-138) and 9300 ± 90 BP (CSIC-385), and some of the paintings may be that old on the basis of the stratigraphic position of painted rock fragments fallen from the roof of the cave (Gradín et al. 1976: 224). Triangular projectile points, a fragment of bola stone, and large side-scrapers are associated with the remains of modern fauna, mainly guanaco. Remains of fox, puma, birds, and small mammals are present in small quantities.

The lower levels of Arroyo Feo Cave, dated between 9410 ± 70 BP (CSIC-514) and 8410 ± 70 BP (CSIC-516), display a lithic inventory comparable with that from Level 11 at Los Toldos. The fauna is dominated by guanaco remains (Silveira 1979). However, the excavators classified these deposits as pertaining to the Toldense (Aguerre 1997), a position that makes sense in terms of chronology as well as assemblage content (Gradín et al. 1976, 1979; Aguerre 1981–82).

Casa del Minero 1 (Paunero et al. 2004), El Verano (Durán 1986–87), and La Martita (Aguerre 1997) are among the many sites that offer important insights into the early Holocene human presence in the Patagonian plateaus. At Casa del Minero 1 there are indications of exploitation of extinct camelids between $10,967 \pm 55$ BP (AA-37208) and $10,250 \pm 110$ BP (AA-45705) (Paunero et al. 2004). El Verano is a site located west of El Ceibo (Durán 1986–87) and is a small cave with occupations dated between ca. 9000 BP and 7500 BP. The butchered remains of guanaco were found in association with triangular points, large end-scrapers, and other edge trimmed tools. The case of La Martita is similar, with an association of guanaco remains, large end-scrapers and triangular points dated between ca. 9000 and 8000 BP (Aguerre 1997). Both sites are used to characterize the Toldense unit.

Two sites located near the Andes—CCP7 and CCP5—represent what appear to be the first incursions into the forest from the east (Civalero and Aschero 2003; De Nigris 2004). Guanaco is the dominant animal resource and southern Andean deer is present in the earliest levels. West of the Andes is the Baño Nuevo site, which has already been mentioned for the presence of early human burials. Modern fauna, basically guanaco, lithics (excluding projectile points), and fragments of an atlatl were found within the early Holocene levels (Mena and Reyes 1998).

The Chorrillo Malo 2 site, south of Lago Argentino, offered an important sequence indicating initial use ca. 9700 BP (Franco and Borrero 2003). Only modern fauna, especially guanaco, is associated with a flake industry.

At the site of Cueva del Medio, in Ultima Esperanza, at least two levels with clear human occupations of late Pleistocene age were recorded (Nami 1987). Butchered bones of horse, ground sloth, *Lama cf. owenii* and guanaco—which is the most abundant vertebrate at the site—are associated with hearths and abundant lithics. Projectile points of the Fell's Cave type are included. The initial occupation is dated between 9595 ± 115 BP (PITT-0344) and $11,120 \pm 130$ BP (NUTA-1737) by 14 radiocarbon dates. The second is dated between $10,450 \pm 100$ BP (NUTA-1735) and $10,850 \pm 130$ BP (NUTA.1812) by three radiocarbon dates (Nami and Nakamura 1995).

At Cueva Lago Sofia (Figure 4.4), a few kilometers north of Cueva del Medio, an association between horse, ground sloth, and guanaco with hearths and lithic instruments was recorded (Prieto 1991). The late Pleistocene component is dated between $11,570 \pm 60$ BP (PITT-0684) and $10,140 \pm 120$ (OxA-9505) by five radiocarbon dates (Massone and Prieto 2004).



Figure 4.4. Cueva Lago Sofia 1, Ultima Esperanza, Chile. (Luis Alberto Borrero)

Cueva Pali-Aike (Bird 1946), Cueva Las Buitreras (Sanguinetti 1976) (Figure 4.5) and Cueva Cóndor (Martin et al. 2005) (Figure 4.6)—all sites located in the Pali Aike Lava Field (Figure 4.7) —also contain evidence of ground sloths, but in none of these cases is there clear indication of human association. Excavations at Fell's Cave demonstrated the existence of an association between megamammals, particularly horse and ground sloth, and humans (Bird 1988). Hearths, projectile points (the famed fish-tail points), and a variety of lithics indicated the presence of humans ca. 11,000 \pm 170 BP (I-3988). A recent re-analysis of the megamammal bones produced evidence for an alternative agent at Fell's Cave, since several horse bones display carnivore punctures (Borrero and Martin 1996). Moreover, the evidence from nearby Cueva del Puma (Martin et al. 2004) and Cueva de los Chingues (San Román et al. 2000) shows that carnivores were abundant and active in the area ca. 11,000 BP.

Finally, during the late Holocene, the variety of sites is impressive, from very large sites with intensive and extensive occupations like Cerro de los Indios (Mengoni Goñalons 1999), to open air camps like those found at Punta Bustamante near the Atlantic coast (Mansur et al. 2004), or accumulations that may have resulted from the repetitive use of rockshelters (Durán 1986–87; De Nigris 2004; Goñi et al. 2004; Rindel 2004). In terms of human dispersal, it looks like most of the Patagonian ecosystems were actively incorporated at this time. However, the human utilization of the interior basins was not homogeneous. Cardiel Lake was intensively used, especially during drought times ca. 1000 BP (Goñi et al. 2004), while the evidence for the use of Argentino Lake during those times is very slight, in spite of a previous history of human utilization since the early Holocene (Franco and Borrero 2003). There are also indications of the utilization of the Atlantic coast, which started slightly before 5000 BP (Moreno 2002). The exploitation of this marine ecosystem



Figure 4.5. Cueva Las Buitreras, Santa Cruz, Argentina. (Luis Alberto Borrero)



Figure 4.6. Cueva Cóndor, Santa Cruz, Argentina. (Luis Alberto Borrero)



Figure 4.7. Pali Aike Lava Field, Santa Cruz, Argentina and Magallanes, Chile. (Luis Alberto Borrero)

appears to be complementary to that of the interior, with populations relying both on terrestrial and coastal resources (Miotti 1998; Gómez Otero 1995; Barberena 2002; Mansur et al. 2004).

Diversification in the lithic technology is also evident. An industry of blades, known to Patagonian archaeologists as Casapedrense, was found at several sites in South Patagonia, particularly between the Chubut and Santa Cruz rivers. Its lack of projectile points is usually emphasized (Cardich et al. 1973). Evidence for this industry began ca. 5000 BP (Bellelli 1987; Carballido Calatayud 2004), and the dominant faunal association is with guanaco. Also, it is becoming clear that at this time there were projectile points in several assemblages from the same region (Gradín et al. 1979). Accompanying all this evidence for technological diversification, is a great diversity in the means of disposing of the dead, in caves or open air sites, as isolated individuals or in large numbers, in elaborated structures or in conditions suggesting immediate abandonment after death (Castro and Moreno 2000; Goñi and Barrientos 2000; Reyes 2002) (Figure 4.8). As a result, a more complex panorama is now emerging. No single area presents evidence strong enough to sustain isolated occupation through the whole Holocene. Very late in the Holocene, near Contact times, there is evidence of a wide net of interaction that was associated with demographic decline (Belardi 2004).

The archaeology of Tierra del Fuego has two very different periods. One is when Tierra del Fuego was still connected to the mainland through a land bridge (McCulloch et al. 1997); the other starts ca. 8500 BP, when the island of Tierra del Fuego was already cut-off. The archaeological information for the first period is very scanty, and includes only two archaeological sites. The Tres Arroyos rock shelter, in Cerro de los Onas in the interior of Tierra del Fuego (Figure 4.9), offered a clear association between hearths, lithic



Figure 4.8. Cueva Orejas de Burro 1. Human burials dated ca. 3500 BP. (Luis Alberto Borrero)



Figure 4.9. Tres Arroyos Rockshelter, Cerro de los Onas, Tierra del Fuego, Chile. (Luis Alberto Borrero)

artifacts—including fragments of projectile points—and butchered remains of both Pleistocene and modern mammals. Several radiocarbon dates indicate an age of ca. 10,500 BP for the earliest occupations (Massone 2005). An occupation dated around 9000 BP was discovered at the Marazzi rock shelter (Laming-Emperaire et al. 1972), located close to Bahía Inútil. Human subsistence was focused on terrestrial resources at both sites.

The evidence for the later period is not abundant in the northern part of the island. For example, at Tres Arroyos the occupation immediately above the late Pleistocene levels is dated ca. 1400 BP (Massone 2005). In fact, most of the known archaeological sites of the north date within the last 2000 radiocarbon years (Massone et al. 1993; Borrero and Barberena 2004). Populations inhabiting the north of the island concentrated on the exploitation of terrestrial resources, and made complementary use of maritime foods, manifested at a variety of coastal and interior sites (Figure 4.10).

In the southern part of the island the evidence for human utilization is more abundant and a maritime oriented way of life is manifested. This way of life, however, is not exclusive to the island. Research at the Otway Sea—at the sites of Englefield, Bahía Colorada, Pizzulic (Legoupil 1997, San Román et al. 2002), the western Strait of Magellan at the sites Punta Santa Ana, Bahía Buena (Ortiz Troncoso 1979), and the middle Beagle Channel at the sites of Lancha Packewaia, Tunel 1, Imiwaia, Mischiuen 1 (Orquera 1987; Orquera and Piana 1999; Piana et al. 2004) — indicates that the maritime adaptation begins ca. 7000–6500 BP and continues up to historical times. A sophisticated bone technology—including harpoons, awls and wedges—is associated with this process. Lithics from these occupations are generalized, a property related to the high degree of residential mobility (Alvarez 2004). Although these sites are marked by the dominance of sea mammals, mollusks, and fish (Legoupil 1997; Orquera 1999; Orquera and Piana 1999; Zangrando 2003), terrestrial



Figure 4.10. San Genaro 4, a Late Holocene coastal site in Tierra del Fuego, Chile. (Luis Alberto Borrero)

fauna were also a part of the diet (San Román et al. 2002; Morello et al. 2002). It must be stated that a similar adaptation is also present in the northwestern channels, for example at Seno Reloncavi, dated ca. 6500-4500 BP (Gaete and Navarro 2004).

DISCUSSION

The initial occupations of most sites in northern Patagonia demonstrate that the guanaco was not necessarily the most important prey. Plants, perhaps foxes, and other small mammals appear as the most important resources and suggest the existence of adaptations not centered on the guanaco. Among the small mammals sometimes associated with the earliest occupations, it is interesting to note the numerical importance of fox remains in the lower layers of Cueva Trafal. There is also an association with fox remains in at least three of the burials at Baño Nuevo (Trejo and Jackson 1998). At the base of the sequence of Epullán Grande at least two species of fox are represented, and one scapula presents cut marks (Crivelli Montero et al. 1996: 206), clearly indicating human exploitation. At Marifilo fox bones are important, beginning slightly before 4870 ± 40 BP (Beta-138918) (Velásquez and Adán 2004). The lack of taphonomic analysis at most of these sites makes it difficult to reach a conclusion concerning the possible importance of this animal for human subsistence. If its presence at these early sites can be attributed to human activities, this evidence suggests the importance for the early explorers of a resource that was later to become secondary or ignored.

Megamammals are present in North Patagonia at sites such as Monte Verde and Trafal. At Trafal the remains of ground sloth were interpreted as probably not associated

with the initial human occupations (Crivelli Montero et al. 1993: 35–36). As noted, even when mastodon remains are present at Monte Verde, they do not appear to have been important for subsistence. Moreover, the evidence for megamammals from most of the sites located near the Andes is not associated with humans (Borrero 2004). An exception to this pattern might be the case of El Trébol, where undated remains of *Mylodontinae* present cut marks. Consequently, the evidence at hand suggests that in many regions of northern Patagonia, especially near the Andean range, the Pleistocene fauna were already gone when the first humans arrived. However, from the beginning there is evidence of a diversified diet in the North, which only occasionally includes large vertebrates.

In the record offered by the steppe sites of South Patagonia and the north of Tierra del Fuego, the pattern appears to be one of an early focus on the consumption of guanaco. Megamammals are sometimes present, and perhaps exploited, but never abundant. Only later in the sequences is there a progressive inclusion of a variety of small mammals, mollusks, plants, and birds. This process includes human dispersal to both the Andean and coastal ecosystems.

During the early period of human adaptation to different Patagonian habitats, lithic artifacts were routinely and expediently made on rocks available in the immediate vicinity, with an emphasis on the transport of bifacial artifacts and/or preforms, adequate for situations of high mobility. Local raw material was predominantly used, and high-quality, heavily curated exotic rocks are present in very low frequencies. On the basis of the Trafal data it was suggested that some of the early deposits found east of the Andes represent a unifacial lithic tradition (Crivelli Montero et al. 1993), but this concept is difficult to defend. Estela Cúneo's (1993) analysis of the lithic debitage of that very site produced evidence supporting the existence of bifacial reduction. The same can be said of several other early assemblages that do not include projectile points in other areas of Patagonia (Nami 1993–94). Finally, the small size of the samples and functional variability must be considered before using the absence of bifaciality as proof of the existence of a unifacial tradition.

CONCLUSION

Since most of the sites used to understand the early peopling are caves, it is clear that there is a functional bias operating in our understanding of the earlier human occupations. However, if we review the chronological record of the different places of Patagonia, the panorama is clear. A couple of sites in the forests of the north—west of the Andes—indicate human presence between ca. 12,500 and 10,200 BP, while several sites date to the early Holocene in the steppes of the east of North Patagonia. Pleistocene megamammals were not important in this part of Patagonia. The record for the middle and late Holocene is not complete, but indicates the dispersal along the river basins and the north Atlantic coast.

Many sites in the plateaus south of the Deseado River display slight evidence of use before the Pleistocene-Holocene Transition, with dates of ca. 11,000 BP for the oldest evidence of human installation. Remains of Pleistocene mammals are present in the earliest levels of some of these sites, but never in large numbers. More intense and repetitive occupations, basically centered in the exploitation of guanacos, follow during the early Holocene when the climate was warmer.

Farther south, radiocarbon dates falling around 11,000-10,500 BP are available, including what is today Tierra del Fuego. The presence of Pleistocene megamammals—mainly horse and ground sloth—is more regular in this southern part of Patagonia, but always associated with intensive utilization of guanaco.

In all of these cases the stratigraphic evidence is well dated by abundant radiocarbon dates, and includes a variety of lithic instruments, artifacts, the occasional bone artifact, basin-shaped hearths, and butchered faunal remains. Thus, the archaeological evidence for the presence of humans near the end of the Pleistocene in southern Patagonia is clear and relatively abundant. It indicates that some 2,000 years before the Transition there were human populations wandering in different parts of the region, and that by around 10,000 BP most of Patagonia was already explored by humans.

The Holocene cultural trajectories of these early populations were manifold, including the appearance of a maritime way of life in the southwestern channels of the Pacific Ocean, the specialization in the exploitation of guanacos in the plateaus and interior basins, and the complementary use of marine resources along the coast of the Atlantic Ocean.

NOTE

1. Chronological information is presented in radiocarbon uncalibrated years.

REFERENCES

- Aguerre, Ana M., 1979, Observaciones sobre la industria Toldense. *Sapiens* 3: 35–54
- _____, 1981–82, Los niveles inferiores de la Cueva Grande (Arroyo Feo), Area Río Pinturas. *Relaciones* 14: 211–239.
- _____, 1997, Replanteo de la industria Toldense. *Arqueología de Patagonia Centro-Meridional*. Ph.D. dissertation. Universidad de Buenos Aires.
- Alberdi, María T. and José L. Prado, 2004, *Caballos Fósiles de América del Sur. Una Historia de Tres Millones de Años*. INCUAPA-Olavarria.
- Alvarez, Myriam R., 2004, ¿A qué responde la diversidad instrumental? Algunas reflexiones a partir del análisis funcional de materiales líticos de la costa norte del Canal Beagle. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández and A. Gabriela Guráieb, pp. 29–43. INAPL-SAA, Buenos Aires.
- Barberena, Ramiro, 2002, *Los Límites del Mar*. Sociedad Argentina de Antropología, Buenos Aires.
- Belardi, Juan B., 2004, Más vueltas que una greca. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández and A. Gabriela Guráieb, pp. 591–603. INAPL-SAA, Buenos Aires.
- Bellelli, Cristina, 1987, El componente de las capas 3a, 3b, 4a, de Campo Moncada 2, Provincia de Chubut y sus relaciones con las industrias laminares de Patagonia central. *Comunicaciones de las Primeras Jornadas de Arqueología de la Patagonia*, pp. 27–32. Rawson.
- Bird, Junius, 1946, The archaeology of Patagonia. In *Handbook of South American Indians, Vol. 1, The Marginal Tribes*, edited by Julian Steward, pp. 17–24. Bulletin 143, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____, 1988, *Travels and Archaeology in South Chile*. University of Iowa Press, Iowa City.
- Borrero, Luis A., 1981, La economía prehistórica de los pobladores del Alero de los Sauces (Neuquén, Argentina). *Trabajos de Prehistoria* 1: 113–126.
- _____, 1989, Replanteo de la arqueología patagónica. *Interciencia* 14 (3): 127–135.
- _____, 2004, The archaeozoology of Andean “dead ends” in Patagonia: living near the continental ice cap. In *Colonisation, Migration, and Marginal Areas. A Zooarchaeological Approach*, edited by Mariana Mondini, Sebastián Muñoz and S. Wickler, pp. 55–61. Oxbow Books, Oxford.
- _____, and Ramiro Barberena (eds.), 2004, *Arqueología del Norte de la Isla Grande de Tierra del Fuego*. Editorial Dunken, Buenos Aires.

- _____ and Nora V. Franco, 1997, Early Patagonia hunter-gatherers: subsistence and technology. *Journal of Anthropological Research* 53: 219–239.
- _____ and Colin McEwan, 1997, The peopling of Patagonia. The first human occupation. In *Patagonia. Natural History, Prehistory and Ethnography at the Uttermost End of the Earth*, edited by Colin McEwan, Luis A. Borrero, and Alfredo Prieto, pp. 32–45. British Museum Press, London.
- _____ and Fabiana M. Martín, 1996, Tafonomía de carnívoros: un enfoque regional. In *Arqueología. Sólo Patagonia*, edited by Julieta Gómez Otero, pp. 189–198. CENPAT-CONICET, Puerto Madryn.
- Carballido Calatayud, Mariana, 2004, Tendencia temporal y tecnología lítica en Campo Moncada 2 (Piedra Parada, Chubut). Su evaluación a partir de los desechos de talla. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández and A. Gabriela Guráieb, pp. 45–55. INAPL-SAA, Buenos Aires.
- Cardich, Augusto, Lucio Cardich, and A. Hajduk, 1973, Secuencia arqueológica y cronología radiocarbónica de la Cueva 3 de Los Toldos. *Relaciones* 7: 85–123.
- _____ and Nora Flegenheimer, 1978, Descripción y tipología de las industrias líticas más antiguas de Los Toldos. *Relaciones* 12: 225–242.
- _____, María E. Mansur-Franchomme, Martín Giesso, and Victor A. Duran, 1981–82, Arqueología de las Cuevas de El Ceibo, Santa Cruz. *Relaciones* 14: 173–209.
- Castro, Alicia and Julian Moreno, 2000, Noticia sobre enterramientos humanos en la costa norte de Santa Cruz, Patagonia, Argentina. *Anales del Instituto de la Patagonia* 28: 225–231.
- Cattáneo, Roxana, 2000, El paisaje y la distribución de los recursos líticos en el Nesocraton del Deseado. In *Guía de Campo de la Visita a las Localidades Arqueológicas*, edited by Laura Miotti, Rafael Paunero, Mónica Salemme and Roxana Cattáneo, pp. 26–35. INQUA, La Plata.
- Ceballos, Rita, 1982, El sitio Cuyín Manzano. *Series y Documentos* 9: 1–66.
- Civalero, María T. and Carlos A. Aschero, 2003, Early occupations at Cerro Casa de Piedra 7, Santa Cruz Province, Patagonia, Argentina. In *Where the South Wind Blows: Ancient Evidences for Paleo South Americans*, edited by Laura Miotti, Mónica Salemme and Nora Flegenheimer, pp. 141–147. A&M University Press, Dallas.
- Coronato, Andrea, Mónica Salemme, and Jorge Rabassa, 1999, Paleoenvironmental conditions during the early peopling of southernmost South America (Late Glacial-Early Holocene, 14–8 ka B.P.). *Quaternary International* 53/54: 77–92.
- Crivelli Montero, Eduardo A., Damiana Curzio, and Mario J. Silveira, 1993, La estratigrafía de la cueva Traful 1 (Provincia de Neuquén). *Praehistoria* 1: 9–160.
- _____, Ulyses F., J. Pardiñas, Mabel M. Fernández, M. Bogazzi, Adriana Chauvin, Victor Fernández, and Maximiliano Lezcano, 1996, Cueva Epullán Grande (Provincia del Neuquén): informe de avance. *Praehistoria* 2: 185–265.
- Cúneo, Estela M., 1993, Análisis de los desechos de talla de las ocupaciones iniciales y del Componente I de la Cueva Traful 1. *Praehistoria* 1: 161–205.
- De Nigris, Mariana, 2004, *El Consumo en Grupos Cazadores Recolectores*. Sociedad Argentina de Antropología, Buenos Aires.
- Dillehay, Tom D. (ed.), 1997, *Monte Verde. A Late Pleistocene Settlement in Chile*, Vol. 2. Smithsonian Institution Press, Washington, D.C.
- _____ and Mario Pino, 1997, Radiocarbon chronology. In *Monte Verde. A Late Pleistocene Settlement in Chile*, Vol. 2, edited by Tom D. Dillehay, pp. 41–52. Smithsonian Institution Press, Washington, D.C.
- Durán, V.A., 1986–87, Estudio techno-tipológico de los raspadores del sitio El Verano, Cueva 1 (Patagonia Centro-Meridional). *Anales de Arqueología y Etnología* 41–42: 129–163.
- Fernández, Jorge, 1983, Cronología y posición estratigráfica del llamado “hombre fósil” de Mata Molle. *Historia Natural* 3: 57–72.
- Franco, Nora V. and Luis A. Borrero, 2003, Chorrillo Malo 2: initial peopling of the Upper Santa Cruz Basin, Argentina. In *Where the South Wind Blows: Ancient Evidences for Paleo South Americans*, edited by Laura Miotti, Mónica Salemme, and Nora Flegenheimer, pp. 149–152. Texas A&M University Press, Dallas.
- Gaete, Nelson and Ximena Navarro, 2004, Estrategias de vida de canoeros cazadores pescadores recolectores del Seno de Reloncaví: entre el bosque siempreverde y el mar interior. Región de los lagos, Chile. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 217–235. INAPL-SAA, Buenos Aires.
- Gómez Otero, Julieta, 1995, Bases para una arqueología de la costa patagónica central (entre el Golfo San José y Cabo Blanco). *Arqueología* 5: 61–103.

- Goñi, Rafael and Gustavo Barrientos, 2000, Estudio de chenques en el Lago Salitroso, Provincia de Santa Cruz. *Desde el País de los Gigantes. Perspectivas Arqueológicas en Patagonia I*: 161–175.
- _____, Juan B. Belardi, S. Espinosa and Florencia Savanti, 2004, Más vale tarde que nunca: cronología de las ocupaciones de cazadores-recolectores en la cuenca del Lago Cardiel (Santa Cruz, Argentina). In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 237–247. INAPL-SAA, Buenos Aires.
- Gradín, Carlos, Carlos A. Aschero, and Ana M. Aguerre, 1976, Investigaciones arqueológicas en la Cueva de las Manos. Estancia Alto Río Pinturas. *Relaciones* 10: 201–250.
- _____, Carlos A. Aschero, and Ana M. Aguerre, 1979, Arqueología del área Río Pinturas. *Relaciones* 13: 187–227.
- Guichón, Ricardo, Ismael Martí, Eugenio Aspillaga, José A. Cocilovo, and Francisco Rothhammer, 1989–90, Contribución al conocimiento de las relaciones biológicas entre las poblaciones aborígenes de Patagonia austral y Tierra del Fuego. *Runa* 19: 27–39.
- Hajduk, Adam, Ana Albornoz, and Maximiliano J. Lezcano, 2004, El “Mylodon” en el patio de atrás. Informe preliminar sobre los trabajos en el sitio El Trébol, ejido urbano de San Carlos de Bariloche, Provincia de Río Negro. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 715–731. INAPL-SAA, Buenos Aires.
- Hedges, Richard, Richard Housley, C. Bronk and G. Van Kunkev, 1992, Radiocarbon dates from the Oxford AMS System. *Archaeometry* 34: 337–357.
- Hernández, Miguel, Carlos Lalueza Fox, and Clara García-Moro, 1997, Fuegian cranial morphology: the adaptation to a cold harsh environment. *American Journal of Physical Anthropology* 103: 103–117.
- Heusser, Calvin J., 1994, Quaternary paleoecology of Fuego-Patagonia. *Revista Instituto Geología Sao Paulo* 15: 7–26.
- Karathanasis, A. D., 1997, X-Diffraction, X-ray fluorescence, and differential scanning calorimetry analysis of sediments from selected features and bones. In *Monte Verde. A Late Pleistocene Settlement in Chile*, Vol. 2, edited by Tom D. Dillehay, pp. 817–824. Smithsonian Institution Press, Washington, D.C.
- Lahr, Marta, 1995, Patterns of modern human diversification: implications for Amerindian origins. *Yearbook of Physical Anthropology* 38: 163–198.
- Lalueza Fox, Carlos, 1996, Mitochondrial DNA haplogroups in four tribes from Tierra del Fuego-Patagonia: inferences about the peopling of the Americas. *Human Biology* 68: 855–871.
- Laming-Emperaire, Annette, Danielle Lavallée, and Roger Humbert, 1972, Le site de Marazzi en Terre de Feu. *Objets et Mondes* 12 (2): 225–244.
- Legoupil, Dominique, 1997, *Bahia Colorada (île d'Englefield). Les Premiers Chasseurs de Mammifères Marins de Patagonie Australe*. Recherches sur les Civilisations, Paris.
- Mancini, María V., 1998, Vegetational changes during the Holocene in extra-Andean Patagonia, Santa Cruz. *Palaeogeography, Paleoclimatology, Palaeoecology* 138: 207–219.
- Mansur, María E., Adriana Lasa, and Martín Vázquez, 2004, Investigaciones arqueológicas en Punta Bustamante, Provincia de Santa Cruz: el sitio RUDO1BK. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 755–774. INAPL-SAA, Buenos Aires.
- Mansur-Franchomme, María E., 1983, *Traces d'Utilization et Technologie Lithique: Exemples de la Patagonie*. Thésis de Doctorat. Université de Bordeaux.
- Markgraf, Vera, 1993, Paleoenvironments and paleoclimates in Tierra del Fuego and southernmost Patagonia, South America. *Palaeogeography, Palaeoclimatology, Palaeoecology* 102: 53–68.
- Martin, Fabiana M., Alfredo Prieto, Manuel San Román, Fabiana Morello, Francisco Prevosti, Pedro Cárdenas, and Luis A. Borrero, 2004, Late Pleistocene megafauna at Cueva del Puma, Pali-Aike lava field, Chile. *Current Research in the Pleistocene* 21: 101–103.
- Massone, Mauricio, 2005, *Los Cazadores Después del Hielo*. Centro Diego Barros Arana, Santiago.
- _____, Donald Jackson, and Alfredo Prieto, 1993, *Perspectiva Arqueológica de los Selk'nam*. Centro Diego Barros Arana, Santiago.
- _____, and Alfredo Prieto, 2004, Evaluación de la modalidad cultural Fell 1 en Magallanes. *Chungara, Volumen Especial*, pp. 303–315.
- McCulloch, Robert, Chalmers Clapperton, Jorge Rabassa and Andy P. Currant, 1997, The natural setting. The glacial and post-glacial environmental history of Fuego-Patagonia. In *Patagonia. Natural History, Prehistory and Ethnography at the Uttermost End of the Earth*, edited by Colin McEwan, Luis A. Borrero, and Alfredo Prieto, pp. 12–31. British Museum Press, London.

- Mena, Francisco, 1997, Middle to Late Holocene adaptations in Patagonia. In *Patagonia. Natural History, Prehistory and Ethnography at the Uttermost End of the Earth*, edited by Colin McEwan, Luis A. Borrero and Alfredo Prieto, pp. 46–59. British Museum Press, London.
- and Omar Reyes, 1998, Esqueletos humanos del Arcaico temprano en el margen occidental de la estepa centropatagónica (Cueva Baño Nuevo, XI Region). *Boletín de la Sociedad Chilena de Arqueología* 25: 19–24.
- Menghin, Osvaldo F.A., 1952, Fundamentos cronológicos de la prehistoria de Patagonia. *Runa* 5: 23–43.
- Mengoni Goñalons, Guillermo L., 1999, *Cazadores de Guanaco de la Estepa Patagónica*. Sociedad Argentina de Antropología, Buenos Aires.
- and Mario J. Silveira, 1976, Análisis e interpretación de los restos faunísticos de la Cueva de las Manos, Estancia Alto, Río Pinturas. *Relaciones* 10: 261–270.
- Mera, Rodrigo and Christian García, 2004, Alero Marifilo 1. Ocupaciones Holoceno temprano en la costa del Lago Calafquén (X Región, Chile). In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández and A. Gabriela Guráieb, pp. 249–262. INAPL-SAA, Buenos Aires.
- Miotti, Laura, 1996, Piedra Museo (Santa Cruz): Nuevos datos para la ocupación Pleistocénica en Patagonia. In *Arqueología, Sólo Patagonia*, edited by J. Gómez Otero, pp. 27–38. CENPAT-CONICET, Puerto Madryn.
- , 1998, *Zooarqueología de la Meseta Central y Costa de la Provincia de Santa Cruz: Un Enfoque de las Estrategias Adaptativas Aborígenes y los Paleoambientes*. Museo de Historia Natural, San Rafael.
- and Jorge Rabassa, 2000, Cronología radiocarbónica. In *Guía de Campo de la Visita a las Localidades Arqueológicas*, edited by Laura Miotti, Rafael Paunero, Mónica Salemmé, and Roxana Cattáneo, pp. 83–85. INQUA, La Plata.
- Morello, Flavia, Manuel San Román and Alfredo Prieto, 2002, Puntas de proyectil lanceoladas en Patagonia meridional y Tierra del Fuego. *Anales del Instituto de la Patagonia* 30: 155–166.
- Moreno, Julián E., 2002, Arqueología de la costa norte de Santa Cruz. Tesis de Doctorado. Universidad Nacional de La Plata.
- Nami, Hugo G., 1987, Cueva del Medio: Perspectivas arqueológicas para la Patagonia austral. *Anales del Instituto de la Patagonia* 17: 73–106.
- , 1993–94, Observaciones sobre desechos de talla procedentes de las ocupaciones tempranas de Tres Arroyos (Tierra del Fuego, Chile). *Anales del Instituto de la Patagonia* 22: 175–180.
- and T. Nakamura, 1995, Cronología radiocarbónica con AMS sobre muestras de huesos procedentes del sitio Cueva del Medio (Última Esperanza, Chile). *Anales del Instituto de la Patagonia* 23: 125–133.
- Neves, Walter A., John F. Powell, and E. G. Ozolins, 1999, Extra-continental morphological affinities of Palli Aike, southern Chile. *Interciencia* 24: 258–263.
- Orquera, Luis A., 1987, Advances in the archaeology of the pampas and Patagonia. *Journal of World Archaeology* 1: 333–413.
- , 1999, El consumo de moluscos por los canoeros del extremo sur. *Relaciones* 24: 307–327.
- and Ernesto L. Piana, 1999, *Arqueología de la Región del Canal Beagle (Tierra del Fuego, República Argentina)*. SAA, Buenos Aires.
- Ortiz Troncoso, Omar, 1979, Punta Santa Ana et Bahia Buena: deux gisements sur une ancienne ligne de rivage dans le détroit de Magellan. *Journal de la Société des Américanistes* LXVI.
- Paunero, Rafael S., 1993–94, El sitio Cueva 1 de la localidad arqueológica Cerro Tres Tetras (Estancia San Rafael, Provincia de Santa Cruz, Argentina). *Anales de Arqueología y Etnología* 48/49: 73–90.
- , 2000, La localidad arqueológica Cerro Tres Tetras. In *Guía de Campo de la Visita a las Localidades Arqueológicas*, edited by Laura Miotti, Rafael Paunero, Mónica Salemmé y Roxana Cattáneo, pp. 89–100. INQUA, La Plata.
- , Manuel Cueto, Ariel Frank, Gabriela Ghidini, Gabriela Rosales and Fabiana Skarbun, 2004, Comunicación sobre campaña arqueológica 2002 en localidad La María, Santa Cruz. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 797–808. INAPL-SAA, Buenos Aires.
- Piana, Ernesto L., Martín Vázquez, and Nadia Rua, 2004, Mischiuen 1. Primeros resultados de una excavación de rescate en la costa norte del canal Beagle. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 815–832. INAPL-SAA, Buenos Aires.
- Prieto, Alfredo, 1991, Cazadores tempranos y tardíos en Cueva Lago Sofía 1. *Anales del Instituto de la Patagonia* 20: 75–99.
- Reyes, Omar, 2002, Funebría indígena en el curso inferior del valle del río Ibáñez, margen occidental de la estepa de centropatagonia (XI Region de Aisén). *Anales del Instituto de la Patagonia* 30: 87–101.

- Rindel, Diego, 2004, Patrones de procesamiento faunístico en el sitio Alero Destacamento Guardaparque durante el Holoceno Tardío. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 263–276. INAPL-SAA, Buenos Aires.
- San Román, Manuel, Flavia Morello and Alfredo Prieto, 2000, Cueva de Los Chingues (Parque Nacional Pali-Aike), Magallanes, Chile. Historia natural y cultural I. *Anales del Instituto de la Patagonia* 28: 125–143.
- , Flavia Morello and Alfredo Prieto, 2002, Nuevos antecedentes sobre la explotación de recursos faunísticos en el mar de Otway y canales adyacentes. *Anales del Instituto de la Patagonia* 30: 147–154.
- Sanguinetti, Amalia C., 1976, Excavaciones prehistóricas en la Cueva de Las Buitreras. *Relaciones* 10: 271–292.
- and Damiana Curzio, 1996, Excavaciones arqueológicas en el sitio Piedra del Aguila 11. *Præ-historia* 3: 43–99.
- Silveira, Mario J., 1979, Análisis e interpretación de los restos faunísticos de la Cueva Grande del Arroyo Feo. *Relaciones* 13: 229–253.
- , 1999, El Alero Larriviére. Un sitio en el bosque septentrional andino. In *Soplando en el Viento*, pp. 83–92. Universidad Nacional del COMAHUE-INAPL, Neuquen-Buenos Aires.
- Soto-Heim, Patricia, 1994, Paleo Indian human remains of Patagonia, Chile. *Current Research in the Pleistocene* 11: 55–57.
- Turner, H. C. G. II, 1992, New World origins: new research from the Americas and the Soviet Union. In *Ice Age Hunters of the Rockies*, edited by Dennis J. Stanford and J. S. Day, pp. 7–50. Denver Museum of Natural History, Niwot.
- Trejo, Valentina and Douglas Jackson, 1998, Cánidos patagónicos: identificación taxonómica de mandíbulas y molares del sitio arqueológico Cueva Baño Nuevo-1 (Alto Ñirehuao, XI Region). *Anales del Instituto de la Patagonia* 26: 181–194.
- Velásquez, Héctor and Leonor Adán, 2004, Marifilo 1: evidencias arqueofaunísticas para entender las relaciones humanas y bosques templados en los sistemas lacustres cordilleranos del centro sur de Chile. In *Contra Viento y Marea. Arqueología de Patagonia*, edited by María T. Civalero, Pablo M. Fernández, and A. Gabriela Guráieb, pp. 507–519. INAPL-SAA, Buenos Aires.
- Vignati, Milcíades A., 1957–59, El hombre fósil de Mata-Molle. *Notas del Museo de La Plata* 19: 327–351.
- Zangrando, Francisco A., 2003, *Ictioarqueología del Canal Beagle. Explotación de Peces y Su Implicación en la Subsistencia Humana*. Sociedad Argentina de Antropología, Buenos Aires.

The Process of Sedentism in Northwestern South America

J. SCOTT RAYMOND

INTRODUCTION

Village life had an early start in the lowlands of northwestern South America, compared to most other areas of the New World. In western Ecuador permanent settlements were firmly established by the late fourth millennium BC. A little earlier, semi-sedentary communities developed in northern Colombia. On the Pacific side of Panama sedentism lagged behind the other two regions but signs of the beginnings of village life were evident by as early as the middle of the third millennium BC. The ecological configurations vary among each of these regions; however, each comprises a lowland tropical environment, cut by rivers and bordered by the sea. In the highlands of the northern Andes, the development of permanent villages was delayed by two or three thousand years (Bruhns 2003; Correal Urrego 2000; Lippi 2003; Raymond 1998). For each of these regions—western Ecuador, northern Colombia, and Pacific Panama—archaeological sequences exist that allow some insight into the social and economic conditions that existed before and during the founding of sedentary communities. Here I first examine each of these sequences and then attempt some comparisons between the three. The character and detail of the archaeological and palaeoenvironmental research vary among the three regions, which to some extent limits the possibility of making valid comparisons.

THE NATURAL SETTING

Northwestern South America comprises a diverse tropical environment, ranging in elevation from sea level at the shores of the Caribbean and Pacific oceans to the summits of the Andean mountains, several thousand meters above sea level. For our purposes, the eastern limits of Northwestern South America are defined by the Cordillera Oriental, and the

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

southern boundary by the lower mountainous region that lies between Peru and Ecuador. Lower Central America is included as far north as central Panama. It would be desirable to include northwestern Venezuela, especially the area around Lake Maracaibo, but at present the archaeological record from that region is not sufficiently detailed to allow generalizations about the processes that led to sedentism.

Although the whole of Northwestern South America lies within the tropics, differences in elevation and precipitation create an array of climatic zones and habitats. In the mountainous areas steep, deep valleys comprise multiple environmental zones ranging from warm tropical conditions in the very bottoms of the valleys to temperate climates in the higher habitable regions. Along the Pacific shores, the dry savanna landscape of southern Ecuador grades into the perennially humid, hot tropical forests of the Chocó-Darién, the wettest place in the Western Hemisphere. From there eastward along the Caribbean coast rainfall diminishes gradually, with dense tropical rainforest changing gradually into seasonally dry forests and savannas. The shorelines along the Pacific and Caribbean are complicated by numerous inlets, lagoons and estuaries, which present rich and varied fishing resources. In Colombia, the Magdalena and Cauca rivers have carved long broad valleys that divide the Andes into three mountain chains. In Ecuador, the Andean massif narrows, and the highlands consist of a series of mountain basins extending south to the Peruvian border.

ECUADOR

In Ecuador, permanent settlements appear on the scene rather suddenly in the latter half of the fourth millennium BC with no apparent immediate antecedents (Marcos 2003; Raymond 1993, 1998, 2003). They are associated with well-made ceramics and tied to an agricultural economy. The process of sedentism, however, can be traced back to the early millennia of the Holocene (Stothert 1988).

Las Vegas

The earliest and most complete record of early settlement comes from the coastal region of southwestern Ecuador. The extensive alluvial plains of the Guayas and Esmeraldas river systems are separated from the Pacific by a range of low mountains and hills. A series of small valleys descend to the sea. A dry tropical environment prevails along the central and southern littoral, with humidity and rainfall increasing significantly in the middle and upper sections of the coastal valleys. The differences in rainfall are very apparent in the vegetation. Cactus and other thorny, xerophytic plants occur along the coastal margins, with gallery forests and tropical cloud forests extending up into the inner reaches of the valleys.

It is in these small coastal valleys that the earliest dated permanent settlements have been discovered. Earlier evidence of territorial hunting, foraging, fishing, and plant cultivation, however, has been recorded on the arid Santa Elena Peninsula, a broad triangle of land that forms the northern lip of the Gulf of Guayaquil; it is the driest part of the Ecuadorian coast. The landscape, formed from uplifted marine terraces, is mostly flat, with shallow drainage channels leading to the coast. The land is barren, except for cactus and other desert-adapted plants, and it is difficult to imagine that humans without the advantage of irrigation were able to eek out a living there. Historical accounts from colonial times, however, reveal a more vegetated past with grasslands and clusters of trees. Carbonized

wood-charcoal, recovered from early and mid-Holocene archaeological sites, also indicates the former existence of a more treed environment. There are no pollen cores or other substantial data that can be used to reconstruct the environment of the region during the early Holocene; however, the evidence of human presence on the peninsula at that time is incontrovertible. The plant and animal remains recovered from the archaeological sites indicate that open savanna grassland covered much of the area. Inland the hills and valleys presented a more varied environment, a diverse array of tropical plant and animal communities (Stothert 1988).

The site of Las Vegas, which has given its name to the earliest culture of the region, is located in the center of the peninsula and is situated between two drainage channels that are charged with water when the rains come. Today the sea is just 4 km away, but considering that sea level rose during the early Holocene and that the Ecuadorian coast has been subject to tectonic uplift, the distance to the sea at the time of occupation is unknown. What seems certain, however, is that the configuration of the coastline was constantly changing through the mid-Holocene and that resource-rich habitats, such as mangrove lagoons, waxed and waned (Ferdon 1981).

Las Vegas was occupied from about 8500 to 4600 BC. During the same period, more than thirty sites, much smaller than Las Vegas, were created in the surrounding countryside; most of these are small, shallow, and represented by a scatter of stone artifacts, shell, and/or bone. Las Vegas, in contrast, covers an area of more than 2,000 m² with a depth of deposit varying from 50 cm to 3 m. Karen Stothert, who excavated the site, estimates that it has been reduced in size considerably over time as a result of wind erosion and the encroachment of the two drainage channels. (Stothert 1985, 1988).

The plant and animal remains at Las Vegas indicate exploitation of a broad range of terrestrial and maritime food resources. Along the littoral, mollusks and crustaceans were collected from a variety of habitats, including sandy beaches, rocky inter-tidal zones, mangrove lagoons, and estuaries. A wide range of fish was caught, including some off-shore species, suggesting that the fishing technology may have included watercraft of some sort. Many different species of mammals, reptiles, and amphibians were hunted, most of which probably would have occurred naturally in the tropical savannas of the peninsula, but some species were creatures of the tropical forests (Stothert 1985).

The Las Vegas people must have traveled over a large territory, hunting, fishing, and collecting food from numerous habitats. The pattern calls to mind the subsistence strategies of trekking societies, such as the Shavante, that were ethnographically recorded from the savannas of the southern Amazon basin, or, more generally, Binford's (1980) model of logistic mobility. The Las Vegas site may have begun as one of many campsites, frequented by collectors moving among many resource zones in the peninsular region, but it soon took on a special significance. Its central location with respect to the other Vegas sites, its significantly greater size and depth of deposit, and the imprint of one small hut and hints of several others (Stothert 1985, 1988) indicate that people spent considerable periods of time in residence at the site. From the base camp of Las Vegas, groups of foragers could have ventured out on day trips, overnights, or more extended journeys to locations where they might hunt, fish or collect, and bring part of the food recovered back to the base camp to share with others. Las Vegas also became the chosen location for funerary rites. Stothert's excavations recovered skeletal remains of at least 192 individuals (Ubelaker 1988). Solidarity among these people and their historical connection to a particular landscape—a sacred landscape, no doubt—was symbolically represented by the dedication of their principal camp to their dead ancestors.

From the beginning of the Holocene phytoliths attest to the cultivation of squash and lleren, a root crop. By 6000 BC, maize was under cultivation as were bottlegourds (*Lagenaria siceraria*); the latter is recorded by the clear imprint of a gourd in a living floor as well as by phytoliths (Pearsall and Piperno 1990; Piperno and Pearsall 1998; Piperno 2003). There is no evidence that cultivated plants were staple foods, and it seems likely that a broad spectrum of resources was still exploited. The cultivation of maize and squash is compatible with a logistically mobile economy, so long as they remain seasonal or feast foods. Once they assume the role of staple foods, the time investment of planting, watering, weeding, harvesting, processing, and storing interferes with the trekking schedule (Raymond and DeBoer 2006). That the Las Vegas people may have been cultivating plants to provide special feast foods speaks to the importance of ritual in their social life and the need to reaffirm their identity as the people who occupied the Santa Elena Peninsula through periodic communal physical acts.

There were subtle but important changes in the economic strategy over the lifespan of Las Vegas culture, changes in the direction of greater sedentism. The first colonists of the region may have practiced a strategy of residential mobility, using Binford's (1980) terminology, in which small groups moved from resource area to resource area. Once Las Vegas was established as a base camp, however, the strategy shifted to one of logistic mobility, with a portion of the population probably present in the camp at all times, and task groups trekking out from the base camp to collect food resources. Gourds, some decorated with carvings, were probably the main storage and serving vessels. Funerary rites and ritual feasting reinforced the social ties of the community and the connection to a particular landscape. Burial of the dead at Las Vegas established, at least, the conceptual foundation of a permanent settlement, if not the reality.

Las Vegas ceased being occupied around 4600 BC, as did the other Vegas sites on the peninsula (Stothert 1985). There followed a period of approximately one thousand years during which there is no evidence of human presence in the region. Why the peninsula was abandoned is not known. It may be that tectonic uplift of the coastline outpaced the rise in sea level, which would have been near its present height by the middle of the fifth millennium BC and that mangroves and other rich fishing resources were diminished. It seems that other factors must have been involved, however, since the broad spectrum economy was equally or more dependent on terrestrial resources.

Valdivia

Whatever the cause of the hiatus of occupation on the Santa Elena Peninsula, it was followed by a dramatic change in settlement patterns (Raymond 1993, 1998). The apparent focus of settlement shifted from the driest parts of the peninsula to coastal valleys. With the exception of one small shallow site, situated on the sea cliffs of the peninsula, all of the newly established settlements were located along the floodplains of lower sections of the coastal valleys or in the interior parts of the valleys adjacent to relatively broad segments of valley bottom land. The locations of the sites, as well as microscopic botanical residues indicate that domesticated plants had become staple foods. Maize, beans, squash, and various root crops were cultivated. Ceramic effigies of gourds further attest the cultivation and use of *Lagenaria siceraria*. (Pearsall 2003).

Settlements increased significantly in size, the smallest being several times the size of Las Vegas. Low hills, adjacent to the floodplains, were the favored locations, and the settlements were laid out in an oval or horseshoe shape, with the huts or houses arranged

around a vacant central arena. The axes of the oval plans ran in a general northerly-southerly direction, with the opening, if there was one, at the south end. In the early settlements the huts were small with a circular floor plan 2 to 3 m across. No clear evidence of the structures has been recovered, but they were probably dome-shaped, with a frame of bent saplings covered with palm or grass thatch (Damp 1984; Raymond 1993).

Beyond the size of the sites and the distinctively different pattern of site distribution in relation to the landscape, the most noticeable characteristic that distinguishes these sites from those of Las Vegas is the presence of pottery. Pottery occurs in great quantities, and from the start it is well-made, well fired, decorated and conforms to a distinctive style, which has been christened the Valdivia style (Hill 1975; Lathrap, Collier, and Chandra 1975; Meggers, Evans, and Estrada 1965). In the earliest assemblages the vessel forms are highly standardized, and although some artistic freedom was allowed in decorating the vessels, there were clear decorative rules that were followed. There is little variation in the style from one site to another, suggesting that ceramic style functioned as an important symbol of cultural identity. Certainly, a visitor from one settlement to another would not have been confused about the etiquette of vessel function (Raymond 1993).

The most highly decorated vessels were the bowls. These were usually finished with a burnished red slip and decorated on the exterior with incised geometric motifs. The motifs have been interpreted as representations of induced visions, with the suggestion that some of the bowls may have functioned as vessels for drinking intoxicating beverages on festival occasions (Damp 1982; Stahl 1985). If that is correct, it is interesting to note that the relative frequency of such bowls is significantly higher at some sites than at others, indicating, perhaps, functional differences among sites with respect to the performance of rituals (White 2004).

Figurines are another distinctive innovation of the Valdivia sites (Blower 2001). At first, figurines were made of stone; later they were made of pottery. The frequent occurrence of the figurines, and the fact that they are often found broken and in the trash heaps, indicate that they were probably part of common household rituals, and not curated icons. The ceramic figurines are almost always explicitly engendered, frequently exhibiting female genitalia and breasts.

The Valdivia sites meet the criteria of permanent settlements in terms of size, depth of deposit, length of occupation, and with an inventory of artifacts usually associated with highly sedentary people. The structures are smaller and less substantial than one would expect in a permanent village; however, as Valdivia settlements evolved the size of houses increased to dimensions capable of sheltering extended family units (Zeidler 1984, 1986). At some sites the central arenas were modified into formal ceremonial plazas, with specialized structures for feasting and funerary rites. Although I believe Valdivia settlements qualify as fully sedentary, there is evidence that there was still a significant degree of mobility. Hunting and fishing continued to be the main dietary sources of protein (Stahl 2003). The remains of seafood, both fish and shellfish, are not abundant but occur in significant numbers in the middens of the inner valley sites, as do the bones of deer and forest creatures in the sites nearer the littoral. There may have been an exchange of food resources among the settlements; however, other indicators point toward economic self-sufficiency of each of the larger settlements. So it is probable that hunting and fishing and collecting parties still trekked some distance from their home villages to acquire foods that were not locally available. There also may have been considerable residential mobility among villages, such as that recorded ethnographically among Ge and Borrero populations of southeastern Amazonia (Nimuendajú 1946).

The thousand-year hiatus in the record and the seemingly sudden appearance of the Valdivia sites makes it difficult to understand the processes that transformed the Las Vegas lifeway into a more sedentary one that included permanent villages, pottery and a greater reliance on agriculture. Arguments favoring colonization of the peninsula region by the Valdivians find some support in the discovery of an early Valdivia site in the Guayas Basin, buried under 7 m of sediment (Raymond, Marcos and Lathrap 1980). The fact that more early Valdivia or pre-Valdivia sites have not been found in the interior lowlands of Coastal Ecuador is plausibly explained by the probability that most of the remains of such early occupations either would have been washed away by the huge Guayas tributaries or buried under meters of flood-plain deposits. The dearth of research efforts to discover such evidence must also be taken into account. We need to be cautious, however, in reconstructing the existence of an expanding population of tropical forest fisher-agriculturalists in the Guayas Basin during the early centuries of the fourth millennium BC, based on a single small site and a plausible explanation for the absence of further evidence.

Other scenarios must be entertained as well. It is possible, for example, that Vegas populations were occupying and exploiting the coastal valleys during the early Holocene. It may be that evidence of such occupations has not been discovered because of the scant surface remains on Vegas sites, the heavier vegetative cover in the valleys, which makes it difficult to discover ancient sites, and the disturbance of the landscape wrought by the relatively dense and extensive human populations that have occupied the valleys since the mid-Holocene. Additionally, it does not seem plausible that the small Las Vegas population, occupying the savanna landscape of the southwestern corner of the peninsula, could have persisted in isolation for nearly four thousand years without other communities with which to engage in connubial exchanges.

PANAMA

Humans were present in Panama during the late Pleistocene, but it is not until the end of the fifth millennium BC that evidence of sedentary behavior is apparent. The site of Cerro Mangote, a shell midden, was discovered in the 1950s on the Pacific coast of Panama (McGimsey 1956). The preponderance of shell in the excavated food residues led to the conclusion that shellfish constituted the dietary staple, and the early radiocarbon dates, ca. 5000 BC, led to the hypothesis that the path toward sedentism in Panama began with the establishment of a fishing economy. Although that hypothesis has not been completely negated, we now know that the subsistence economy in Panama at the time was much more complex than that revealed by the piles of shells excavated at Cerro Mangote.

The first clues came from re-excavations of Cerro Mangote in the 1970s, using excavation techniques that enhanced the recovery of food remains. The analysis of those remains indicated that the dietary breadth of the people who lived at the site was much greater than had been inferred from the earlier excavations. A range of terrestrial animals was hunted, including deer, iguanas, and various rodents. Sea birds, estuarine fish and fish from sandy beaches are also included in the faunal remains. Cerro Mangote was situated near the mouth of the Santa Maria River, but its inhabitants ranged widely in their quest for meat. In terms of its total dietary contribution, deer meat was as important as shellfish (Ranere and Hansell 1978).

A second clue came from studies of the palaeoenvironment through pollen and botanical remains in lake cores. These revealed that from the early to mid-Holocene there

was an increased incidence of fire and a reduction in the size of the tropical forests in the foothills, even during periods when average annual rainfall was increasing. A series of small sites in the same region, revealed mainly by scatters of stone tools, indicated that human agency was responsible for the burning and clearing, probably done for economic purposes (Piperno, Bush and Colinviaux 1991).

The third and most unexpected evidence of the complexity of the food economy was the discovery of the presence of domesticated plants dating to the early to mid-Holocene. Like the environment of coastal Ecuador, the hot, humid conditions of Panama are not conducive to the preservation of plants unless they are thoroughly carbonized. The identification of the floral side of the ancient diets, therefore, has been achieved through the recovery and analysis of microscopic remains, mainly phytoliths and starch granules recovered from the soils of archaeological sites, from food processing tools, and from the teeth of human skeletons. Maize, manioc (*Manihot esculenta*), arrowroot (*Maranta arundinacea* L.), and yams (*Dioscorea* sp.) have been identified as domesticates that were being cultivated in Panama at the time that Cerro Mangote and other small-scale sites were occupied (Piperno 1994; Piperno and Pearsall 1998; Piperno, Ranere, and Hansell 2000).

Finally, chemistry of the collagen and apatite of bones from human burials excavated at Cerro Mangote has revealed that maize comprised a significant portion of the diet (Norr 1995). Cerro Mangote, then, does not attest to a small group of fisher folk settled along the Panamanian coast living off of shellfish, but provides a small window on a highly mobile society that was trekking between the inland hilly country and the littoral on a seasonal or periodic basis. Both sub-regions have diverse habitats and food resources. Crops, maize among them, were cultivated in swidden plots in the hills, where collecting and hunting activities were carried out as well. Along the littoral, shellfish, fish, crustaceans and sea-birds were exploited on the sandy beaches, in the estuaries and in the mangroves.

The fact that Cerro Mangote was more than just a camping place where food was consumed is attested by the human burials. Like the Las Vegas people, the ancient Panamanians buried their dead in a special location, simultaneously honoring their ancestors, consecrating an important camping place and, through repeated rituals, emphasizing their continuing relationship with a specific landscape.

Although Cerro Mangote may represent the beginnings of a process that led to sedentism, the development was slower in Panama than in Ecuador, despite the comparably early presence of domesticated food plants. By 2400 BC, the site of Monagrillo was established. Its size is 1.4 ha making Monagrillo the largest site in Panama up to that time (Cooke and Ranere 1986, 1992). Situated in the same estuarine region as Cerro Mangote, Monagrillo seems to have served the same functional role as Cerro Mangote, i.e., a base camp for a highly mobile population exploiting a broad range of food resources, including agricultural products. A significant increase in the frequency of milling stones at Monagrillo and other sites, from 2400 BC onward, indicates a greater reliance on processing foods, probably for storage, and probably a greater reliance on maize. Monagrillo marks the first appearance of pottery in Panama, another indicator of food processing and storage and usually associated with a greater degree of sedentism. The pottery, however, was poorly fired, rarely decorated, and occurs at a much lower frequency than at the Valdivia sites in Ecuador or the San Jacinto sites in Colombia (to be discussed below) (Cooke 1995). The number of sites in the upland regions increased dramatically, all reflecting short-term occupations. Concurrently, environmental degradation accelerated, including almost complete deforestation. These changes may reflect an intensification of slash-and-burn agriculture to the point that fallow periods were so short that the forests were unable to regenerate (Piperno and Pearsall

1998). It was not until late in the first millennium BC, however, that settlements associated with the cultivation of the rich bottom lands are evident in the river valleys.

In Ecuador, where the cultivation of domesticated plants began at about the same time as in Panama, the transition to sedentary agricultural villages occurred about three millennia earlier. We can only speculate about why the alluvial bottom lands in Panama remained unexploited for so long. Perhaps the remains of the earliest settlements in the Panamanian valleys have been washed away by the rivers or buried by sedimentation of the flood plains. Also, the low firing temperatures of the Monagrillo pottery cause it to disintegrate more readily than the Valdivia pottery, making Monagrillo sites more difficult to discover. Judging strictly from the evidence, it seems that the population increases associated with Monagrillo and the intensification of agriculture did not lead directly to the establishment of permanent villages; however, until more research is focused on the possibility of coeval settlements in the valleys, we cannot exclude the possibility that such villages did exist.

NORTHERN COLOMBIA

As in Panama, it is not until early in the Middle Holocene that evidence of sedentary behavior occurs in the archaeological record of Colombia. The first discoveries were made near the Caribbean coast in the estuarine environment of the Magdalena River. Dating to ca. 3100 BC, Puerto Hormiga, a shell-midden site with pottery, was at first interpreted as part of a pattern in which the beginning of sedentary life was linked to a fishing economy that exploited the rich resources of estuaries and sea coasts (Reichel-Dolmatoff 1965). Further investigation, however, revealed that the estuarine sites were palimpsests of repeated, relatively short-term occupations that came and went as the abundance of resources in the coastal lagoons waxed and waned (Oyuela Caycedo and Rodriguez R. 1990).

Research in the interior regions of the lower Magdalena Valley revealed still earlier sites associated with pottery. San Jacinto I, the earliest of the interior sites, dates to ca. 4000 BC. Situated on an ancient point bar of the San Jacinto river, a small tributary of the Magdalena, San Jacinto I has been interpreted as a special-purpose camp that was occupied seasonally to harvest and process wild plants that occurred in concentrations near the site. Oyuela-Caycedo and Bonzani's (2005) meticulous analysis of the site and its environmental context has yielded an extraordinarily detailed picture of the activities that occurred there. Seeds were ground and pounded with stones, wrapped in leaves and baked in earth ovens. Pottery, elaborately decorated in the same style as the early pottery from the estuary sites, was not used for cooking; rather the size and shape suggests that the pots were used as serving vessels, perhaps for fermented beverages (Pratt 1999). Since the site flooded during the wet season and the seed resources were available for no more than 2 to 3 months during the dry season, the occupation each year was short and focused intensively on the collection and processing of the plant foods.

Other special-purpose sites, of comparable age to San Jacinto, have yet to be found in the region as does a base camp comparable to Las Vegas. Other camps must have existed, though, to accommodate the foraging requirements of the population in the other seasons of the year. Oyuela-Caycedo and Bonzani (2005) have proposed a logistic mobility model (Binford 1980) as the most likely subsistence strategy. According to this model, there would have been a strategically positioned base camp as well as other special purpose camps, all associated with a hunting-collecting territory, which belonged exclusively to

the local population. By ca. 3000 BC a less mobile pattern may have evolved, perhaps as a result of increased competition for resources. The site of San Jacinto II, dating to that time, may be evidence of the beginning of sedentary villages. Situated on high ground above any seasonal flooding, it appears to have been organized in a circular village plan. The preliminary testing that has been carried out, however, is not sufficient to answer questions of permanence of settlement or the nature of activities that occurred there (Oyuela Caycedo and Bonzani 2005). Other sites with ceramics in the same style have been reported a little further inland along the main course of the Magdalena River, but none as yet have been investigated archaeologically (Reichel-Dolmatoff 1985).

Permanent village settlements are clearly represented in the archaeological record of northern Colombia by 2000 BC. It is frustrating that the research that could document their evolution has not yet been undertaken.

THE HIGHLAND REGIONS

Sedentism in the highland regions of northwestern South America clearly lagged behind that of the lowlands. In the Savanna of Bogotá, archaic hunting-and-gathering societies persisted well into the middle of the first millennium BC (Correal Urrego 2000). The transition to sedentary villages, however, is not well delineated in the archaeological record. Permanent settlements seem to appear suddenly on the scene, together with pottery and agricultural crops. Similarly in the northern highlands of Ecuador the record is not yet sufficiently detailed to piece together the evolution of sedentary life. The ceramic bearing site of Cotocollao, occupied by 1800 BC, is the only early village site yet excavated. It was supported by an agricultural economy, but its relationship to other sites in the region bearing similar ceramics needs to be investigated before the characteristics of its sedentism can be determined (Bruhns 2003; Lippi 2003; Villalba 1988).

CONCLUSION

During the first millennium BC, most of northwestern South America became significantly more sedentary. Throughout the highlands and lowlands most populations lived in sedentary villages by the end of the millennium. Increasing population size and density probably, at least partly, played a causal role. As communities found themselves competing increasingly with neighboring communities for resources, they began to focus their economies more intensively on localized food production.

With respect to the sequences of change delineated for the lowland regions of southwest Ecuador, Pacific Panama and northern Colombia, it is difficult to identify a common cause for the development of sedentism. The precocious and dramatic change from the mobile society of Las Vegas to the sedentary villages of Valdivia raises the question of whether the latter evolved out of the former or whether Valdivia was an intrusion from elsewhere, e.g., the nearby Guayas Basin.

The dearth of early evidence of village sites in the river valleys of Panama contrasts with the evidence from Ecuador and frustrates any attempt at empirical generalization. The evidence from the San Jacinto region of Colombia fits well with a scenario in which competing communities of foragers were forced to intensify their reliance on fewer resources and circumscribe their territories more and more, a process that eventually led

to agriculturally intensive sedentary communities. In Ecuador and Panama cultivation of domesticated plants began a few thousand years before permanent settlements appeared on the scene. Pottery, often regarded as the hallmark of sedentism, was being produced in northern Colombia and Panama more than a thousand years before year-round settlements, whereas in Ecuador permanent villages and ceramics co-occur in the record.

Clearly, much more archaeological and palaeoenvironmental research is needed before we can understand the significance of the similarities and differences in the respective paths to sedentism.

REFERENCES

- Binford, Lewis R., 1980, Willow smoke and dogs' tails: hunter-gatherer settlement systems and archaeological site formation. *American Antiquity* 45: 4–20.
- Blower, David, 2001, It's All in the Stones: Identifying Early Formative Period Transition through the Incised Stone Figurines of Valdivia, Ecuador. Ph.D. dissertation. Department of Archaeology, University of Calgary.
- Bruhns, Karen Olsen, 2003, Social and cultural development in the Ecuadorian highlands and eastern lowlands during the Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 125–174. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Cooke, Richard, 1995, Monagrillo, Panama's first pottery: summary of research, with new interpretations. In *The Emergence of Pottery: Technology and Innovation in Ancient Societies*, edited by William Barnett and John W. Hoopes, pp. 169–184. Smithsonian Institution Press, Washington, D.C.
- and Anthony J. Ranere, 1986, El Proyecto Santa María: a multidisciplinary analysis of prehistoric adaptations to a tropical watershed, Panama. In *Developments in Isthmian Archaeology*, edited by Fred W. Lange, Vol. 212, pp. 3–31. B.A.R., Oxford.
- and Anthony J. Ranere, 1992, Prehistoric human adaptations to the seasonally dry forests of Panama. *World Archaeology* 24: 114–133.
- Correal Urrego, Gonzalo, 2000, Evidencias culturales Pleistocénicas y del temprano Holoceno en la Cordillera Oriental de Colombia: periodización tentativa. In *Formativo Sudamericano, Homenaje a Alberto Rex González y Betty J. Meggers*, edited by Paulina Ledergerber-Crespo, pp. 63–73. Abya Yala, Quito.
- Damp, Jonathan, 1982, Ceramic art and symbolism in the Early Valdivia community. *Journal of Latin American Lore* 8: 155–178.
- , 1984, Architecture of the Early Valdivia village. *American Antiquity* 49: 573–585.
- Ferdon, Edwin N., 1981, Holocene mangrove formations on the Santa Elena Peninsula, Ecuador: pluvial indicators or ecological response to physiographic changes. *American Antiquity* 46: 619–625.
- Hill, Besty, 1975, A new chronology of the Valdivia ceramic complex from the coastal zone of Guayas Province, Ecuador. *Ñawpa Pacha* 10–12: 1–39.
- Lathrap, Donald W., Donald Collier, and Helen Chandra, 1975, *Ancient Ecuador: Culture, Clay, and Creativity, 3000–300 B.C.* Field Museum of Natural History, Chicago.
- Lippi, Ronald D., 2003, Formative Period chronology for the northern and central highlands of Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 529–537. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Marcos, Jorge G., 2003, A Reassessment of the Ecuadorian Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 7–32. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- McGimsey, Charles R., 1956, Cerro Mangote: a preceramic site in Panama. *American Antiquity* 22: 151–161.
- Meggers, Betty J., Clifford Evans, and Emilio Estrada, 1965, *Early Formative Period of Coastal Ecuador: The Valdivia and Machalilla Phases*. Vol. 1. Smithsonian Contributions to Anthropology. Smithsonian Institution, Washington, D.C.
- Nimuendajú, Curt, 1946, The Eastern Timbira. *University of California Publications in American Archaeology and Ethnology*, Vol. 41. University of California Press, Berkeley.
- Norr, Lynnette C., 1995, Interpreting dietary maize from bone stable isotopes in the New World tropics: the state of the art. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Applications*, edited by Peter W. Stahl, pp. xvii, 312. Cambridge University Press, New York and Cambridge.

- Oyuela Caycedo, Augusto and Renee M. Bonzani, 2005, *San Jacinto 1: A Historical Ecological Approach to an Archaic Site in Colombia*. The University of Alabama Press, Tuscaloosa.
- _____, and C. Rodriguez R., 1990, Shell midden formation. Paper presented at the Sixth International Conference of the International Council for Archaeozoology, Smithsonian Institution.
- Pearsall, Deborah M., 2003, Plant food resources of the Ecuadorian Formative: an overview and comparison to the Central Andes. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 213–257. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, and Dolores R. Piperno, 1990, Antiquity of maize cultivation in Ecuador: summary and reevaluation of the evidence. *American Antiquity* 55: 324–337.
- Piperno, Dolores R., 1994, Phytolith and carbon evidence for Prehistoric slash and burn agriculture in the Darién rainforest of Panama. *The Holocene* 4: 321–325.
- _____, Mark B. Bush, and Paul A. Colinvaux, 1991, Paleoecological perspectives on human adaptation in central Panama II: The Holocene. *Geoarchaeology* 6: 227–250.
- _____, and Deborah M. Pearsall, 1998, *The Origins of Agriculture in the Lowland Tropics*. Academic Press, San Diego.
- _____, Anthony J. Ranere and P. Hansell, 2000, Starch grains reveal early root crop horticulture in the Panamanian tropical forest. *Nature* 407: 894–897.
- _____, and Karen E. Stothert, 2003, Phytolith evidence of Early Holocene Cucurbita domestication in southwest Ecuador. *Science* 299: 1054–1057.
- Pratt, J. A. E., 1999, Determining the function of one of the New World's earliest pottery assemblages. *Latin American Antiquity* 10: 71–85.
- Ranere, Anthony J. and Patricia Hansell, 1978, Early subsistence patterns along the Pacific coast of central Panama. In *Prehistoric Coastal Adaptations: The Economy of Maritime Middle America*, edited by B. L. Stark and B. Voorhies, pp. 43–59. Academic Press, New York.
- Raymond, J. Scott, 1993, Ceremonialism in the Early Formative of Ecuador. In *El Mundo Ceremonial Andino*, edited by Luis Millones and Yoshio Onuki, pp. 23–43. Senri Ethnological Series, Vol. 37. National Museum of Ethnology, Osaka.
- _____, 1998, Beginnings of sedentism in the lowlands of Northwestern South America. In *Recent Advances in the Archaeology of the Northern Andes*, edited by Augusto Oyuela Caycedo and J. Scott Raymond, Vol. 39, pp. 10–19. The Institute of Archaeology, UCLA, Los Angeles.
- _____, 2003, Social formations in the western lowlands of Ecuador during the Early Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 33–67. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, and Warren R. DeBoer, 2006, Maize on the Move. In *Histories of Maize: Multidisciplinary Approaches to the Prehistory, Linguistics, Biogeography, Domestication, and Evolution of Maize*, edited by J. E. Staller, R. H. Tykot, and B. F. Benz, pp. 337–342. Elsevier, San Diego.
- _____, Jorge G. Marcos, and Donald W. Lathrap, 1980, Evidence of Early Formative settlement in the Guayas Basin, Ecuador. *Current Anthropology* 21: 700–701.
- Reichel-Dolmatoff, Gerardo, 1965, *Excavaciones Arqueológicas en Puerto Hormiga, Departamento de Bolívar*. Vol. 2. Publicaciones de la Universidad de Los Andes, Antropología. Bogotá.
- _____, 1985, *Monsú: Un Sitio Arqueológico*. Fondo de Promoción de la Cultura del Banco Popular, Bogotá.
- Stahl, Peter W., 1985, The hallucinogenic basis of Early Valdivia Phase ceramic bowl iconography. *Journal of Psychoactive Drugs* 17: 105–123.
- _____, 2003, The zooarchaeological record from Formative Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 175–212. Dumbarton Oaks Research Library and Collections, Washington, D.C.
- Stothert, Karen E., 1985, The Preceramic Las Vegas culture of Coastal Ecuador. *American Antiquity* 50: 613–637.
- _____, 1988, *La Prehistoria Temprana de la Península de Santa Elena, Ecuador: Cultura Las Vegas*, edited by Karen E. Stothert. Miscelánea Antropológica Ecuatoriana, Serie Monográfica, Vol. 10, Museo del Banco Central del Ecuador, Guayaquil.
- Ubelaker, Douglas H., 1988, Restos de esqueletos humanos del Sitio OGSE-80. In *La Prehistoria Temprana de la Península de Santa Elena, Ecuador: Cultura Las Vegas*, edited by Karen E. Stothert, pp. 105–132. Miscelánea Antropológica Ecuatoriana, Serie Monográfica, Vol. 10. Banco Central del Ecuador, Guayaquil.
- Villalba, O. M., 1988, *Cotacollao: Una Aldea Formativa del Valle de Quito*. Miscelánea Antropológica Ecuatoriana, Serie Monográfica, Vol. 2. Museos del Banco Central del Ecuador, Quito.

- White, J.-A., 2004, Early Valdivia Ceramics: Production and Consumption at Loma Alta and Real Alto, Ecuador. M.A. thesis. Department of Archaeology, University of Calgary.
- Zeidler, James A., 1984, Social Space in Valdivia Society: Community Patterning and Domestic Structure at Real Alto, 3000–2000 B.C. Ph.D. dissertation. Department of Anthropology, University of Illinois at Urbana-Champaign.
- , 1986, La evolución local de asentamientos formativos en el litoral ecuatoriano: el caso de Real Alto. In *Arqueología de la Costa Ecuatoriana: Nuevos Enfoques*, edited by Jorge G. Marcos, pp. 85–127. Coporación Editora Nacional, Quito.

Central Andean Environments

DANIEL H. SANDWEISS
AND JAMES B. RICHARDSON III

INTRODUCTION

The Andes is a region of great environmental diversity, and the period of human occupation over the last 13,000 or more years has been a time of change in climate and environment. Our understanding of the ancient people of the Andes must be embedded in this physical context. In this chapter, we focus on the Central Andes—or modern day Peru, highland Bolivia, Ecuador, and northern Chile (Figure 6.1). We also recommend Chapter 2 in Moseley (2001) and Chapter 1 in Richardson (1994).

Though lying mostly in the southern tropics, the Central Andes includes high, snow-capped peaks, rich intermontane valleys, well-watered eastern slopes dropping to the Amazon jungle, and arid western slopes descending to a coastal desert broken by irrigable valleys and fronting one of the world's richest fisheries (Figure 6.2). Within this general setting lie a multitude of microenvironments, the location, size, and productivity of which have varied as climate changed and natural and cultural forces altered the landscape and necessarily affected human-environment interactions. As one outcome of this diversity, ancient Andean people found and domesticated a wide variety of plants adapted to the range of available habitats (see National Research Council 1989; see Chapter 7 in this volume). The number of domesticated animals, however, was not correspondingly large, consisting of guinea pigs, several birds, llama, and alpaca; the dog came into the region early but already domesticated.

Technology, history, cultural practices, religion, perception, and individual and group idiosyncrasies can all affect the way a society and its members dynamically interact with their environment and respond to environmental and climatic change (Sandweiss et al. 2001). Nevertheless, people must make a living from the natural world around them, and when that world changes, they must respond in some way. How humans took advantage of, altered, or succumbed to the physical conditions imposed by the Andean region through time is an important part of regional prehistory. Indeed, the special characteristics

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008



Figure 6.1. Map of the Central Andes, with sites and places mentioned in the text. (Daniel Sandweiss).

of the Central Andean environment play major roles in many influential if controversial ideas about the Andean past (e.g., rich ocean: maritime foundations of Andean civilization, Moseley 1975 but cf. e.g., Raymond 1981; highland microenvironments: ecological complementarity/“verticality,” Murra 1972 but cf. e.g., van Buren 1996).

THE EIGHT NATURAL REGIONS

Peruvian geographer Javier Pulgar Vidal (1987) divides Peru into eight “natural regions” based on climate, altitude, and indigenous land use (Figure 6.2). With some alterations, these zones apply to the rest of the Central Andes. After reviewing this modern classification, we will note some of the natural and cultural factors that have caused change in the

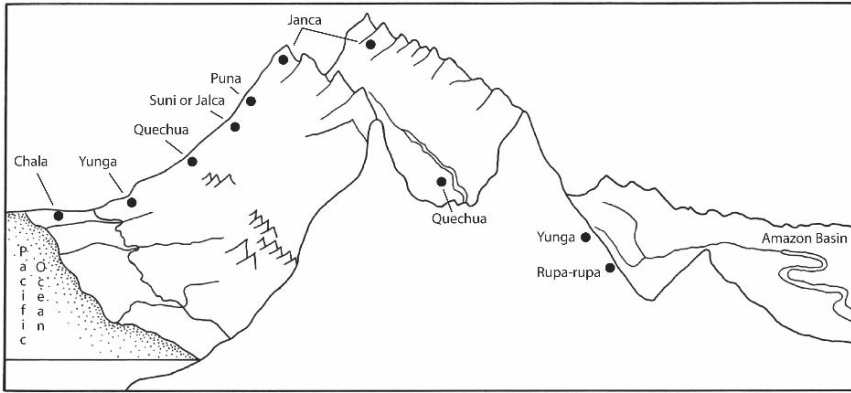


Figure 6.2. Cross-section of the Central Andes showing the major environmental zones according to Pulgar Vidal (1987). (Adapted from Richardson 1994).

Andean environment over the span of human occupation and briefly sample some of the major issues in the study of prehistoric human-environment interaction in this region.

Pulgar Vidal (1987) uses Quechua folk terminology to label his “natural regions.” Though these regions are organized from west to east and largely along the altitudinal gradient that so strongly affects local climate and environment in this tropical region, there are important latitudinal (north-south) gradients as well. For instance, coastal aridity increases to the south from the Ecuadorian-Peruvian border to the Atacama Desert of northern Chile, while the average impact of El Niño events decreases along the same trend. The high elevation puna zone (see below) of central and southern Peru grades north into the moister paramo of Ecuador and south into the more arid Salt Puna and Dry Puna of northern Chile and adjacent regions.

Pulgar Vidal’s (1987) first zone, *chala*, runs from the Pacific shore up the western slopes to about 500 masl. Though a desert in Peru and Chile, this coastal zone is covered with dense fog or garúa in the austral winter. The presence of a desert on a tropical coast results from two factors: the rain shadow of the high Andes and the cold Humboldt or Peru Current that flows from Antarctica north as far as the Illescas Peninsula in northern Peru. Above 200 masl and up to 1,000 masl in places, the garúa permits a xerophytic plant community known as lomas that provided some plant foods, fuel, and faunal resources for early inhabitants of the western slopes. The desert becomes more extreme as one moves south, while to the north (into Ecuador) the coastal zone receives more precipitation but garúa does not form. The chala is broken by river valleys that run perpendicular to the coastline; some have year-round flow while others are ephemeral. From the earliest occupation, the valleys have provided people with water and plant and animal resources. Irrigation and, with it, intensive farming of the fertile valley floors began at least 4,400 years ago in some coastal valleys and probably as early as 6,100 years ago in quebradas of the western slopes (Burger 1992; Dillehay et al. 2005; Grieder et al. 1988; Quilter et al. 1991; Shady Solis et al. 2001). Finally, thanks largely to nutrient upwelling in the Humboldt Current, the Pacific Ocean off Peru and Chile constitutes one of the world’s richest fisheries. Even the first inhabitants of the region made extensive use of marine resources as much as 13,000 years ago (Sandweiss et al. 1998, 1999; see also Chapter 10), and fishing has remained important through the present.

The next zone is the *yunga*, present on the western slopes overlooking the Pacific Ocean from 500 up to 2,300 masl, and on the eastern slopes overlooking the Amazon basin from 2,300 down to 1,000 masl (Pulgar Vidal 1987). Cut by deeply incised river valleys and dry quebradas, the western or maritime yunga consists of parched hillsides and mountain slopes where only lomas plants grow (at the lower elevations) during the winter. Under normal circumstances, agriculture is possible only in the valleys. The eastern or fluvial yunga consists of forested slopes, deep valleys, and lateral quebradas. This zone receives more regular and abundant precipitation than the maritime yunga and offers forest products as well as potential for agriculture. Most indigenous Andean crops grow in irrigated regions of both the chala and the yunga zones.

Moving up, the *quechua* zone lies between 2,300 and 3,500 masl and includes some of the most productive land in the Central Andes. Here the terrain rises in smooth steps above rich valleys. Rainfall is seasonal and both rain fed and irrigation agriculture is possible. In later prehistory, terracing became an important means of increasing the amount of arable land in the quechua zone and above. The quechua zone is the upper limit of maize cultivation, and many other Andean crops grow well here. Average annual temperature ranges between 11° and 16° C, with maximum temperatures as high as 29° C and minimums as low as -4° C. Though there are some seasonal differences, diurnal variation is much more striking and significant, as geographer Carl Troll (1958) pointed out half a century ago. In the higher reaches of the quechua zone, warm days can alternate with nights below freezing. Here, and in higher elevation zones, Andean people have long taken advantage of this cycle to make freeze-dried potatoes known as chuño and dried camelid (llama, alpaca, and relatives) meat called charqui (jerky in American supermarkets and convenience stores). These are storable staples with a long shelf life.

It is in the quechua zone (Pulgar Vidal 1987) that one reaches an important potential barrier for human habitation: the effects of decreasing oxygen saturation with altitude. Looking at biological studies of the effects of altitude on human health and reproduction, both Richardson (1992) and Aldenderfer (1998) have suggested that the initial colonization of the Andes above about 2,850 masl may have required a multi-generational period of gradual adaptation to altitude.

Pulgar Vidal (1987) defines the region from 3,500 to 4,000 masl on both the eastern and western sides of the Central Andes as *suní* or *jalca*. This is a steeper terrain than the quechua zone, with high relief and narrow, rocky quebradas. Only limited areas are suitable for agriculture. The climate is cool, with average annual temperatures between 7° and 10° C and a maximum-minimum range of 20° to -16° C. Many high altitude Andean crops grow here, including the chenopods quinoa and cañihua, the lupin tarhui, the fava bean or haba, and tubers such as oca and olluco.

The highest permanently habitable zone is the *puna*, from 4,000 to 4,800 masl (Pulgar Vidal 1987). This is a relatively low relief, high altitude grassland that appears as north-south strips including the altiplano of southern Peru and Bolivia around Lake Titicaca. The puna is a cold region, with average annual temperature between 0° and 7° C. Like the quechua and suni zones, however, there is strong diurnal variation, and days can be quite warm. The potato (*Solanum tuberosum*) is the most important of the few indigenous domesticates that grow in the puna zone. Other important crops in the puna zone include cañihua (*Chenopodium pallidicaule*), which grows to 4,400 masl, and quinoa (*Chenopodium quinoa*), which grows in the puna zone in Ecuador but only to about 4,000 masl in Peru, Bolivia, and northern Chile (National Research Council 1989). However, this region is the home of the Andean camelids, the wild guanaco (*Lama guanicoe*) and vicuña (*Lama*

vicugna) and the domestic llama (*Lama glama*) and alpaca (*Lama pacos*). These animals were an important source of meat and wool for Andean peoples, and domesticated llamas also served as beasts of burden (though with a very limited maximum load, about 25 kg or one sack of potatoes).

The *janca* zone runs from 4,800 masl to the top of the Andean peaks (Pulgar Vidal 1987). Though visited by prehistoric people (e.g., Reinhard 2005), the low temperatures and lack of oxygen make this a poor place for habitation. Still, the glaciers and snowcapped peaks of the *janca* are the origin of the rivers that water the Central Andes.

On the eastern slopes of the Central Andes, below the *yunga* lies the *rupa-rupa* or high jungle zone from 400 to 1,000 masl (Pulgar Vidal 1987; it is called *ceja de selva* or eyebrow of the jungle in Peruvian Spanish). This is a warm, humid, well-vegetated region of broken terrain cut by valleys and quebradas. Average annual temperature ranges from 22° to 25° C and it never freezes. Both farming and herding can be practiced here.

The final zone is the Amazonian jungle or *omagua*. This hot, wet environment has many peculiarities of importance for understanding human adaptations, but it lies outside the scope of this chapter (see Chapter 12 in this volume).

CLIMATE AND ENVIRONMENT

In the Andes, climate affects the position and size of glaciers; the location, frequency, seasonality, and quantity of precipitation; sea level; the position of the snow line and of vegetation belts; the frequency and intensity of El Niño/Southern Oscillation (ENSO) events; and plant and animal distributions. Furthermore, the Andes are located on a subducting plate margin (the oceanic Nazca Plate is sliding under the continental South American Plate), so the region is subject to frequent seismic activity and volcanism. Earthquakes, volcanic eruptions, and the tsunamis sometimes associated with seismic activity not only have a devastating impact on the people, but on the towns, cities, and economic infrastructure such as irrigation works (de Silva and Francis 1991; Giesecke and Silgado 1981; Oliver-Smith 1986). However, because of the unusual shallow-angle subduction under northern and central Peru, active volcanism does not occur here as it does in Ecuador and in southern Peru, Bolivia, northern Chile, and Argentina (Barazangi and Isacks 1976). Consequently, this sector of the Central Andes lacks catastrophic volcanic eruptions and obsidian (a volcanic glass highly prized as a lithic raw material). However in southern Peru there have been major volcanic eruptions, such as that of Huaynaputina in AD 1600, which blanketed the region with ash (de Silva and Zielinski 1998).

Paleoclimatic paleoenvironmental studies in the Central Andes are ongoing, with new discoveries yearly. Here, we summarize the major sources of information on past conditions and changes; later, we will point to some important instances of climatic or environmental alterations that correlate with cultural change. To keep up with the cutting edge, readers are encouraged to follow the contents of journals such as *Science*, *Nature*, *Geology*, *Quaternary Research*, *Quaternary International*, *Quaternary Science Reviews*, *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*, and *Geoarchaeology* in addition to the standard archaeological literature.

The high Andes offer a multitude of paleoclimatic archives. These include ice cores from ice caps and glaciers (sometimes with annual resolution) (e.g., Thompson et al. 1985, 1995, 1998), glacial deposits (e.g., Rodbell and Seltzer 2000), wetland and lake cores (e.g., Abbott et al. 1997), salar (salt flat) cores (Geyh et al. 1999), packrat middens

(Betancourt et al. 2000), archaeological sites (e.g., Aldenderfer 1998), and others. In contrast to the highlands, the extreme aridity and cool oceanic waters along the Central Andean coast mean that this region lacks pollen catchments and corals, two important sources of paleoclimatic data in other coastal regions. Glaciers never extended to the tropical Andean coast. Cores from the ocean floor have critical hiatuses through the middle of the Holocene and/or their recent segments have not been published in detail. Consequently, archaeological sites and their contents play an important role in reconstructing coastal climate over the 13,000 years of human presence (Sandweiss 2003).

Every paleoclimatic archive requires interpretation; many are not directly suited to the scale or locale of archaeological sites (Dincauze 2000), and extending inferences beyond the immediate region of the record requires recognizing teleconnections (long-distance climatic interactions) and positing that the same teleconnections operated at the time of interest. Paleoclimate modeling is another approach to reconstructing past environments and climates in the Andes. However, thus far few models operate at the human scale that would be of most use to archaeologists, and there is little agreement among different models at any spatial scale.

Humans had arrived in the Andes by about 13,000 years ago, at the end of the Pleistocene epoch as the last ice age was drawing to a close (Dillehay 2000; Lavallée 2000). Through most of the world, this was a period of radical and often abrupt climatic change (Taylor et al. 1997, *inter alia*). Nor was the succeeding Holocene epoch (the last 11,400 years) the time of stability once envisaged (e.g., Stager and Mayewski 1997; see articles in *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology* vol. 194[1–3], 2003, for recent, regional Andean data). Though swings were less radical than in the Pleistocene, Holocene climatic variability occurred during a time of increasing human population size and density, increasing sedentism, and developing dependence on agropastoral subsistence systems—in other words, a time of ever greater vulnerability to change.

From the end of the Pleistocene Epoch to the present, global climate has cycled through many phases and events with local, Andean expressions, at millennial, centennial, decadal, and interannual time scales. The earliest well-dated archaeological sites in the Central Andes date to the Younger Dryas, a 1,600-year cold reversal in much of the world, the last gasp of the waning ice age from 13,000–11,400 cal yr BP. In much of the world, the mid-Holocene (9000–3000 cal yr BP) was a time of greater than present warmth; in the Atacama Desert of northern Chile and parts of southern Peru, this appears to have a period of great aridity and low human populations labeled by Núñez as the “archaeological silence” (Grosjean et al. 1997; Sandweiss et al. 1998; however, as usual there is controversy, see for example Betancourt et al. 2000; Grosjean et al. 2001). At the same time, the first part of this period (9000–5800 cal yr BP) saw mildly increased precipitation on the north coast of Peru. The second part of the mid-Holocene (5800–3000 cal yr BP) witnessed the rise of monument building, fishing, irrigation farming, complex societies on the central and north coasts of Peru and in the adjacent highlands in a climatic context of coastal desiccation and increased interannual variability. To the south, these developments tended to lag, appearing as much as a millennium later, toward the close of the dry period (Sandweiss 2003; Calgero Santoro, personal communication).

In the Central Andes as elsewhere, people have played major roles in changing their environment, not always for the better (Dincauze 2000; Redman 1999). Humans are active geomorphic agents (Denevan 1992; Erickson 1992; Hooke 2000) as well as frequent meddlers with the biota (Gade 1999; Johannessen and Hastorf 1990). As in much of the world, the adoption of agriculture had the most visible impact in the Andes, both by generating new

species and by changing the landscape and available habitats (Denevan 2001; Zaro and Umire 2005). In quebradas of the western slopes, small-scale irrigation began by 6100 cal yr BP and led to “artificially created wet agroecosystems” (Dillehay et al. 2005). On the desert coast, the advent of irrigation systems (beginning perhaps as early as 4400 cal yr BP) expanded the vegetated portion of valleys from narrow gallery forests to the entire floodplain and even in places onto the desert margin. Much later, during the Middle Horizon, terracing began to transform the high Andes by radically increasing the amount of flat surface available for planting (Moseley 2001: 232–233), while the construction of raised fields in the Lake Titicaca region during the first millennium AD (1950–950 cal yr BP) vastly enhanced the agricultural potential of that harsh region (e.g., Erickson 1988, 1992). One study has found that Andean terraces were particularly effective in preserving soil quality even after centuries of agricultural use (Sandor and Eash 1991, 1995). In the Llanos de Mojos of Bolivia raised fields were also constructed over a vast area (Denevan 1966; Erickson 1995; Walker 2004). In addition to farming, other deliberate or inadvertent human actions altered environments and the resources that they offered to people, and even deliberate actions often had unintended consequences (Redman 1999).

CLIMATIC AND ENVIRONMENTAL CHANGE AND RESOURCE KNOWLEDGE IN ANDEAN PREHISTORY: A SAMPLER

In this section, we briefly review several case studies of human-environment interaction in the Central Andes. This includes not only human adaptations to constantly changing environments and distributions of plant and animal resources, but also the knowledge of geological resources for the production of artifacts such as stone tools. Figure 6.1 shows the location of sites and places mentioned in this section.

Climatic Control on Obsidian Availability

Among the many spatially discrete resources that the Andes offer, obsidian is one of particular utility both for the ancient people and for archaeologists. Each source of obsidian has a unique chemical signature, so obsidian in archaeological sites can be traced back to its origin. Over the past twenty-five years, Richard Burger and his colleagues have identified the major types of Andean obsidian and located most of the sources (see Burger et al. 2000 for a review and demonstration of the anthropological utility of obsidian sourcing). Obsidian debitage from the Terminal Pleistocene component at Quebrada Jaguay is among the earliest samples studied, and all of the fragments came from the Alca source, some 165 km distant from this coastal fishing site at elevations of 2,800 to 3,800 masl and higher (Jennings and Glascock 2002; Sandweiss et al. 1998). Only 20 km further away along a better-watered route, the 4,900 masl Chivay obsidian source was extensively used later in prehistory, though no Chivay material was present at Quebrada Jaguay. Did this difference represent early territoriality or inaccessibility of the Chivay source? Preliminary fieldwork and dating of glacial features by glacial geologist Harold Borns (personal communication) and Daniel Sandweiss support the latter and suggest that a Younger Dryas age (ca. 13,000–11,400 cal yr BP) glacial readvance as low as 4,650 masl would have covered the Chivay source during the Terminal Pleistocene occupation at Quebrada Jaguay.

Sea Level, Site Preservation, and Early Maritime Adaptations

Despite C. Barrington Brown's (1926) early report of preceramic sites in far northern Peru, it was the work of Junius Bird (et al. 1985) at Huaca Prieta, northern Peru, in the late 1940s that put the Central Andean coastal preceramic on the map. Subsequent research on this epoch focused on the central Peruvian coast, and in the 1960s Edward Lanning (e.g., 1967) devised an influential cultural sequence for the coastal preceramic based on his work at Ancón-Chillón near Lima. Lanning did not find any significant use of marine resources until around 5800 cal yr BP, with his Encanto phase. At the same time, James B. Richardson III was beginning research on the preceramic of far northern Peru, where he found marine mollusks in Amotape phase campsites dating as early as 12,800 cal yr BP. Adding these data to other whispers of pre-5800 maritime adaptations, Richardson (1981) sought and found an explanation for the spatial distribution of such evidence: early fishing seemed to occur only where the continental shelf was narrow. As he pointed out, these are the sectors of ancient shorelines that suffered the least horizontal displacement as sea level rose with deglaciation from 21,000–5800 cal yr BP. Places like Ancón-Chillón have a relatively wide shelf, so the shoreline moved fairly quickly until sea level stabilization, drowning any early maritime sites that might have existed there. Confirmation of Richardson's hypothesis of sea level rise and settlement loss came in the 1990s, with the discovery and excavation of very early maritime sites such as Quebrada Jaguay (~13,000–8250 cal yr BP), and Quebrada Tacahuay (Keefer et al. 1998; Sandweiss et al. 1998; see Sandweiss, in this volume).

El Niño Frequency Change and Correlated Cultural Change

Another line of environmental archaeological research initiated by Richardson (1973) in far northern Peru is the recognition of changing ocean currents in the Mid-Holocene from the contents of archaeological middens. Over the next thirty years, Richardson and his colleagues pursued this issue, eventually using archaeological mollusk and fish remains to determine likely variations in the frequency of El Niño (ENSO): a period of few or no ENSO events and warmer than present coastal waters in northern Peru from ~9000–5800 cal yr BP; a period of strong but infrequent ENSO events and cool waters along all of Peru from ~5800–3000 cal yr BP; and conditions within the modern range since the latter date (Sandweiss et al. 2001). Though these conclusions have been debated, they are now well substantiated by multiple paleoclimatic records throughout the Pacific basin (see summary in Sandweiss 2003). The climatic transition at 5800 cal yr BP correlates with the onset of monumental construction on the Peruvian coast, while the transition at 3000 cal yr BP correlates with the abandonment (at the end of the Initial Period) of the last temples in this tradition after almost 3,000 years of development. Carefully nuanced further research is needed to see if there are any causal or explanatory links in these correlations.

Vulnerability of Agricultural Systems

Agrarian collapse is another research area that highlights human-environment interaction. Plant cultivation began on the coast of Ecuador, over 11,000 years ago (Piperno and Pearsall 1998; Piperno and Stothert 2003) and irrigation systems were in place on the western (Pacific) slopes of northern Peru by about 6000 cal yr BP (Dillehay et al. 2005). In the highlands, the earliest evidence of agriculture dates to the end of the Late Preceramic Period around 4000–3700 cal yr BP in Cotahuasi (Perry et al. 2006), while

small-scale irrigation of the interandean valleys in Cajamarca began in the late Initial Period between ca. 3000 and 2500 cal yr BP (Burger 1992: 111). Large-scale terracing and, in the Lake Titicaca region, raised fields were first constructed in the second half of the first millennium AD (ca. 1450–950 cal yr BP). None of these systems was stable in the long term, and some suffered spectacular, precolumbian collapses. The causes for agrarian collapse have been hotly debated, with suggestions for individual cases ranging from tectonic movement to engineering incompetence to climatic change. Space does not permit detailed discussion of case studies, but following are brief references to major examples. In the Moche area of northern coastal Peru, field systems built from the end of the Early Intermediate Period (ca. 200 BC–AD 600 or 2150–1350 cal yr BP) through the early Late Intermediate Period had contracted significantly before the end of the Late Intermediate Period (ca. AD 1100–1440 or 850–510 cal yr BP). Moseley (1983 *inter alia*) posits tectonically driven landscape alteration as the primary cause of field abandonment, while others suggest human factors (e.g., Pozorski and Pozorski 1982). In far southern Peru, just north of Ilo, Clement and Moseley (1991) document the contraction of a small-scale, spring-fed coastal irrigation system also apparently as the result of tectonic activity during the second millennium AD. In the same area, but slightly further inland, Moseley and colleagues found evidence not only for agrarian collapse but also for radical social reorganization at about AD 1350 (ca. 600 cal yr BP). In the Ilo river valley, a large-magnitude flood associated with El Niño destroyed field systems, the main canal, and most dwellings on the valley slopes and bottoms; along with agrarian contraction and demographic collapse, the local, Chiribaya culture shows significant change in cultural patterns following this event (Reycraft 2000; Satterlee et al. 2001). In the altiplano around Lake Titicaca, during the first millennium AD, raised field agriculture vastly increased the agrarian productivity of this inhospitable, high-altitude environment (e.g., Erickson 1988). Early in the second millennium AD, however, raised field technology was abandoned and not rediscovered until late in the twentieth century. Kolata and his colleagues (e.g., Binford et al. 1997) have argued that the proximate cause of agrarian collapse in this region was climatic change evident in a variety of paleoclimatic archives. Erickson (1999) has questioned their interpretation and the use of what he characterizes as “neo-environmental determinism” in causal explanations of prehistoric Andean culture change.

CONCLUSION

The correlation of the changing paleo-environment with cultural change in the Central Andes is still in its “infancy,” but the last thirty years of research have demonstrated that understanding climatic change and natural disasters is critical to reconstructing cultural trajectories in the Andes. From this brief sampler, it is evident that human-environment interaction remains an important if hotly debated issue in the understanding of ancient Andean peoples. Given the physical and climatic nature of the region over the last 13,000 years, that is hardly surprising.

REFERENCES

- Abbott, Mark B., Michael W. Binford, Mark Brenner, and Kerry R. Kelts, 1997, A 3500¹⁴C yr high-resolution record of water-level changes in Lake Titicaca, Bolivia/Peru. *Quaternary Research* 47: 169–180.
- Alldenderfer, Mark S., 1998, *Montane Foragers*. University of Iowa Press, Iowa City.

- Barazangi, Muawia and Bryan L. Isacks, 1976, Spatial distribution of earthquakes and subduction of the Nazca plate beneath South America. *Geology* 4: 686–692.
- Betancourt, J.L., C. Latorre, J.A. Rech, J. Quade, and K.A. Rylander, 2000, A 22,000-year record of monsoonal precipitation from northern Chile's Atacama Desert. *Science* 289: 1542–1546.
- Binford, Michael W., Alan L. Kolata, Mark Brenner, John W. Janusek, Matthew T. Seddon, Mark Abbott, and Jason H. Curtis, 1997, Climate variation and the rise and fall of an Andean civilization. *Quaternary Research* 47: 235–248.
- Bird, Junius B., John Hyslop, and Milica D. Skinner, 1985, The Preceramic Excavations at the Huaca Prieta, Chica Valley, Peru. *Anthropological Papers of the American Museum of Natural History*, Vol. 62, Pt. 1.
- Brown, C. Barrington, 1926, On stone implements from north-west Peru. *Man* 64: 97–101.
- Burger, Richard L., 1992, *Chavin and the Origins of Andean Civilization*. Thames and Hudson, London and New York.
- , Karen L. Mohr Chávez, and Sergio J. Chávez, 2000, Through the glass darkly: prehispanic obsidian procurement and exchange in southern Peru and northern Bolivia. *Journal of World Prehistory* 14: 267–362.
- Clement, Christopher Ohm and Michael E. Moseley, 1991, The spring-fed irrigation system of Carrizal, Peru: a case study of the hypothesis of agrarian collapse. *Journal of Field Archaeology* 18: 425–443.
- Denevan, William M., 1966, The aboriginal cultural geography of the Llanos de Mojos of Bolivia. *Ibero-Americana* 48.
- , 1992, The pristine myth: the landscapes of the Americas in 1492. *Association of American Geographers* 82: 369–385.
- , 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, Oxford.
- de Silva, Shanaka L. and Gregory A. Zielinski, 1998, Global influence of the AD 1600 eruption of Huaynaputina, Peru. *Nature* 393: 455–458.
- and Peter W. Francis, 1991, *Volcanoes of the Central Andes*. Springer-Verlag, New York.
- Dillehay, Tom D., 2000, *The Settlement of the Americas: A New Prehistory*. Basic Books, New York.
- , Herbert H. Eling, Jr., and Jack Rossen, 2005, Preceramic irrigation canals in the Peruvian Andes. *Proceedings of the National Academy of Sciences* 102: 17241–17244.
- Dincauze, Dena F., 2000, *Environmental Archaeology*. Cambridge University Press, Cambridge.
- Erickson, Clark L., 1988, Raised field agriculture in the Lake Titicaca Basin: putting ancient Andean agriculture back to work. *Expedition* 30 (3): 8–16.
- , 1992, Prehistoric landscape management in the Andean highlands: raised field agriculture and its environmental impact. *Population and Environment* 13: 285–300.
- , 1995, Archaeological perspectives on ancient landscapes of the Llanos de Mojos in the Bolivian Amazon. In *Archaeology in the American Tropics: Current Analytical Methods and Applications*, edited by Peter W. Stahl, pp. 66–95. Cambridge University Press, Cambridge.
- , 1999, Neo-environmental determinism and agrarian collapse in Andean prehistory. *Antiquity* 73: 634–642.
- Gade, Daniel W., 1999, *Nature and Culture in the Andes*. The University of Wisconsin Press, Madison.
- Geyh, Mebus A., Martin Grosjean, Lautaro Núñez, and Ulrich Schotterer, 1999, Radiocarbon reservoir effect and the timing of the Late-Glacial/Early Holocene Humid Phase in the Atacama Desert (northern Chile). *Quaternary Research* 52: 143–153.
- Gisecke, Alberto and Enrique Silgado, 1981, *Terremotos en el Perú*. Ediciones Rikchay, Lima.
- Grieder, Terence, Alberto Bueno Mendoza, C. Earle Smith, Jr., and Robert M. Malina, 1988, *La Galgada, Peru: A Preceramic Culture in Transition*. University of Texas Press, Austin.
- Grosjean, Martin, Jay Quade, Jason Rech, Julio Betancourt, and Claudio Latorre, 2001, Mid-Holocene climate in the south-central Andes: humid or dry? *Science* 292: 2391.
- , Lautaro Núñez, Isabel Cartajena, and Bruno Messerli, 1997, Mid-Holocene climate and culture change in the Atacama Desert, northern Chile. *Quaternary Research* 48: 239–246.
- Hooke, Roger LeB., 2000, On the history of humans as geomorphic agents. *Geology* 28: 843–846.
- Jennings, Justin and Michael D. Glascock, 2002, Description and method of exploitation of the Alca obsidian source, Peru. *Latin American Antiquity* 13: 107–117.
- Johannessen, Sissel and Christine A. Hastorf, 1990, A history of fuel management (A.D. 500 to the present) in the Mantaro Valley, Peru. *Journal of Ethnobiology* 10: 61–90.
- Keefer, David K., Susan D. deFrance, Michael E. Moseley, James B. Richardson III, Dennis R. Satterlee, Amy Day-Lewis, 1998, Early maritime economy and El Niño events at Quebrada Tacahuay, Peru. *Science* 281: 1833–1835.

- Lanning, Edward P., 1967, *Peru before the Incas*. Prentice Hall, Englewood Cliffs.
- Lavallée, Danièle, 2000, *The First South Americans: The Peopling of a Continent from the Earliest Evidence to High Culture*. Translated by Paul G. Bahn. University of Utah Press, Salt Lake City.
- Moseley, Michael E., 1975, *The Maritime Foundations of Andean Civilization*. Cummings, Menlo Park.
- , 1983, The good old days were better: agrarian collapse and tectonics. *American Anthropologist* 85: 773–799.
- , 2001, *The Incas and their Ancestors*. Revised Edition. Thames and Hudson, London and New York.
- Murra, John V., 1972, El control vertical de un máximo de pisos ecológicos en la economía de las sociedades andinas. In *Visita a la Provincia de León de Huánuco [1562]*, Tomo 2 (by Iñigo Ortiz de Zúñiga), pp. 429–476. Universidad Nacional Hermilio Valdizán, Huánuco, Peru.
- National Research Council, 1989, *Lost Crops of the Incas: Little-Known Plants of the Andes with Promise for Worldwide Cultivation*. National Academy Press, Washington, D.C.
- Oliver-Smith, Anthony, 1986, *The Martyred City: Death and Rebirth in the Andes*. University of New Mexico Press, Albuquerque.
- Perry, Linda, Daniel H. Sandweiss, Dolores R. Piperno, Kurt Rademaker, Michael A. Malpass, Adán Umire, and Pablo de la Vera, 2006, Early maize agriculture and interzonal interaction in southern Peru. *Nature* 440 (March 2): 76–79.
- Piperno, Dolores R. and Deborah Pearsall, 1998, *The Origins of Agriculture in the Lowland Neotropics*. Academic Press, San Diego.
- and Karen E. Stothert, 2003, Phytolith evidence for Early Holocene *Cucurbita* domestication in southwest Ecuador. *Science* 299: 1054–1057.
- Pozorski, Thomas and Shelia Pozorski, 1982, Reassessing the Chicama-Moche intervalley canal: comments on hydraulic engineering aspects of the Chicama-Moche intervalley canal. *American Antiquity* 47: 851–868.
- Pulgar Vidal, Javier, 1987, *Geografía del Perú Las Ocho Regiones Naturales*. Ninth edition. PEISA, Lima.
- Quilter, Jeffrey, Bernardino Ojeda E., Deborah M. Pearsall, Daniel H. Sandweiss, John G. Jones, and Elizabeth S. Wing, 1991, The subsistence economy of El Paraíso, Peru. *Science* 251: 277–283.
- Raymond, J. Scott, 1981, The maritime foundations of Andean civilization: a reconsideration of the evidence. *American Antiquity* 46: 806–821.
- Redman, Charles L., 1999, *Human Impact on Ancient Environments*. The University of Arizona Press, Tucson.
- Reinhard, Johan, 2005, *The Ice Maiden: Inca Mummies, Mountain Gods, and Sacred Sites in the Andes*. National Geographic Society, Washington, D.C.
- Reycraft, Richard Martin, 2000, Long-term human response to El Niño in south coastal Peru. In *Environmental Disaster and the Archaeology of Human Response*, edited by Garth Bawden and Richard Martin Reycraft, pp. 99–120. Maxwell Museum of Anthropology Papers, No. 7.
- Richardson III, James B., 1973, The preceramic sequence and the Pleistocene and post-Pleistocene climate of northwest Peru. In *Variations in Anthropology*, edited by Donald W. Lathrap and Jody Douglas, pp. 199–211. Illinois Archaeological Survey, Urbana.
- , 1981, Modeling the development of sedentary maritime economies on the coast of Peru: a preliminary statement. *Annals of Carnegie Museum* 50: 139–150.
- , 1992, Early hunters, fishers, farmers and herders: diverse economic adaptations in Peru to 4500 B.P. *Revista de Arqueología Americana* 6: 71–90.
- , 1994, *People of the Andes*. Smithsonian Institution, Washington D.C.
- Rodbell, Donald T. and Geoffrey O. Seltzer, 2000, Rapid ice margin fluctuations during the Younger Dryas in the tropical Andes. *Quaternary Research* 54: 328–338.
- Sandor, J.A. and N.S. Eash, 1991, Significance of ancient agricultural soils for long-term agronomic studies and sustainable agricultural research. *Agronomy Journal* 83: 29–37.
- and N.S. Eash, 1995, Ancient agricultural soils in the Andes of southern Peru. *Soil Science Society of American Journal* 59: 69–78.
- Sandweiss, Daniel H., 2003, Terminal Pleistocene through Mid-Holocene archaeological sites as paleoclimatic archives for the Peruvian coast. *Palaeogeography, Palaeoclimatology, Palaeoecology* 194: 23–40.
- , Heather McInnis, Richard L. Burger, Asunción Cano, Bernardino Ojeda, Rolando Paredes, María del Carmen Sandweiss, and Michael D. Glascock, 1998, Quebrada Jaguay: early maritime adaptations in the Andes. *Science* 281: 1830–1832.
- , David K. Keefer, and James B. Richardson III, 1999, First Americans and the sea. *Discovering Archaeology* 1 (1): 59–65.

- , Kirk A. Maasch, Richard L. Burger, James B. Richardson III, Harold B. Rollins, and Amy Clement, 2001, Variation in Holocene El Niño Frequencies: climate records and cultural consequences in ancient Peru. *Geology* 29: 603–606.
- Satterlee, Dennis R., Michael E. Moseley, David K. Keefer, and Jorge E. Tapia A., 2001, The Miraflores El Niño disaster: convergent catastrophes and prehistoric agrarian change in southern Peru. *Andean Past* 6: 95–116.
- Shady Solis, Ruth, Jonathan Haas, and Winifred Creamer, 2001, Dating Caral, a Preceramic site in the Supe Valley on the central coast of Peru. *Science* 292: 723–726.
- Stager, J.C. and P.A. Mayewski, 1997, Abrupt Early to Mid-Holocene climatic transition registered at the equator and the poles. *Science* 276: 1834–1836.
- Taylor, K.C., P.A. Mayewski, R.B. Alley, E.J. Brook, A.J. Gow, P.M. Grootes, D.A. Meese, E.S. Saltzman, J.P. Severinghaus, M.S. Twickler, J.W.C. White, S. Whitlow, and G.A. Zielinski, 1997, The Holocene-Younger Dryas transition recorded at Summit, Greenland. *Science* 278: 825–827.
- Thompson, L.G., E. Mosley-Thompson, J.F. Bolzan, and B.R. Koci, 1985, A 1500-year record of tropical precipitation in ice cores from the Quelccaya Ice Cap, Peru. *Science* 229: 971–973.
- , E. Mosley-Thompson, M. E. Davis, P.-N. Lin, K. A. Henderson, J. Cole-Dai, J. F. Bolzan, and K.-B. Liu, 1995, Late Glacial Stage and Holocene tropical ice core records from Huascaran, Peru. *Science* 269: 46–50.
- , E. Mosley-Thompson, M. E. Davis, P.-N. Lin, K. A. Henderson, J. Cole-Dai, J. F. Bolzan, and K.-B. Liu, 1998, A 25,000-year tropical climate history from Bolivian ice cores. *Science* 282: 1858–1864.
- Troll, Carl, 1958, Las culturas superiores andinas y el medio geográfico. *Revista del Instituto de Geografía* 1. Translated by Carlos Nicholson. Facultad de Letras, Universidad Nacional Mayor de San Marcos, Lima.
- Van Buren, Mary, 1996, Rethinking the vertical archipelago: ethnicity, exchange, and history in the south central Andes. *American Anthropologist* 98: 338–351.
- Walker, John H., 2004, *Agricultural Change in the Bolivian Amazon*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 13. Pittsburgh.
- Zaro, Gregory and Adán Umire Alvarez, 2005, Late Chiribaya agriculture and risk management along the arid Andean coast of southern Perú, A.D. 1200–1400. *Geoarchaeology* 20: 717–737.

Plant Domestication and the Shift to Agriculture in the Andes

DEBORAH M. PEARSALL

INTRODUCTION

The Andes encompass deserts, tropical forests, and high elevation environments. An equally diverse array of crops is present, many with origins in regions as distant as west Mexico and Brazil (Figure 7.1). The story of agriculture, and the plant domestication underwriting it, begins in the Early Holocene, in the economies of early hunter-gatherers. It culminates in the late pre-Hispanic period when populations throughout the area had agricultural economies that supported large populations, many of which were organized as highly complex societies. In this chapter I review the crops that underlie Andean agriculture, summarize our understanding of their areas of origin, and review the archaeological record of plant domestication and agriculture. I focus only on major domesticated plants that occur in the Andean archaeological record. The key sources include Hernández Bermejo and León (1994), Piperno and Pearsall (1998), Sauer (1993), and Smartt and Simmonds (1995).

CROPS OF THE ANDES

Lowland Roots and Tubers

The most important lowland roots and tubers are achira (*Canna edulis*), llerén (*Calathea allouia*), arrowroot (*Maranta arundinacea*), manioc (*Manihot esculenta*), and sweet potato (*Ipomoea batatas*). Except for manioc, evidence for the origins of root and tuber crops is largely lacking. It is likely that all were domesticated in the seasonally dry, low to mid-elevation tropics; formation of subterranean storage organs is a seasonality adaptation. Suitable environments are found east of the Andes to the north and south of the Amazon, on the Ecuadorian coast, and in parts of Central America.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

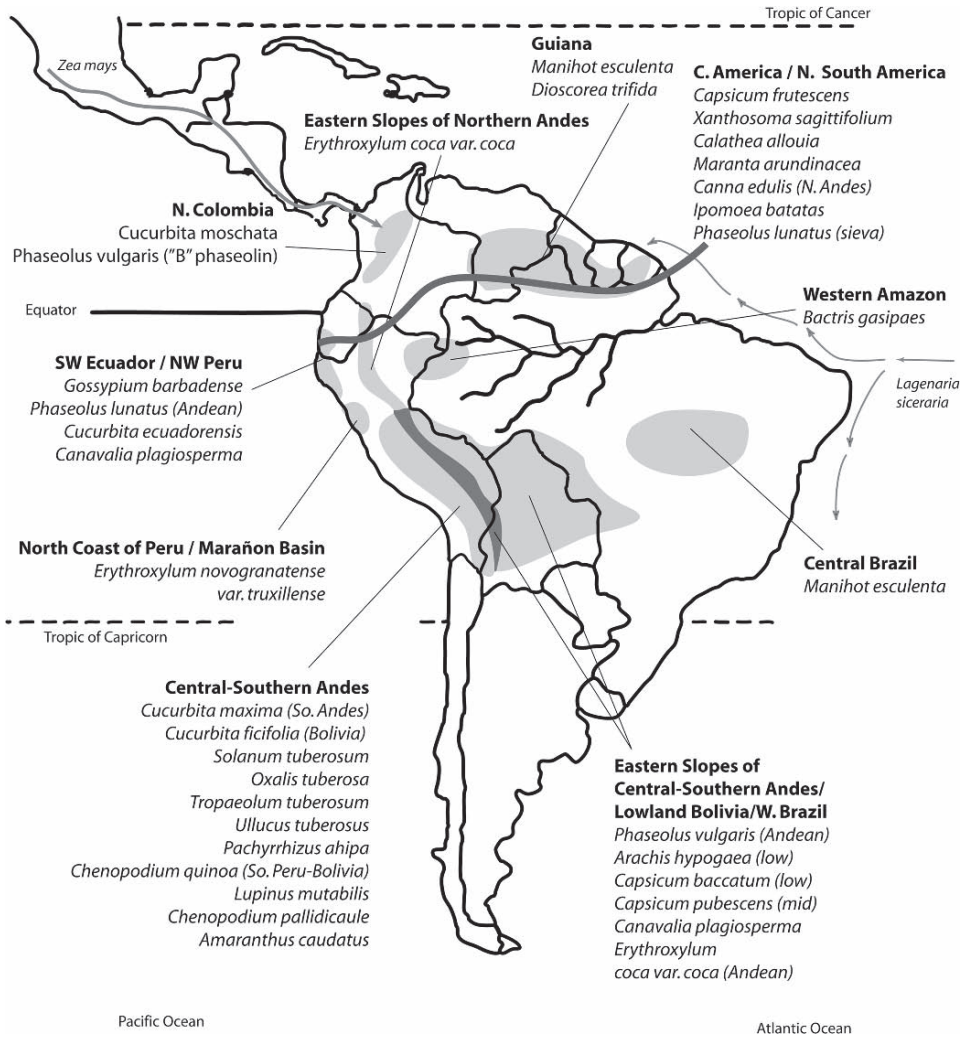


Figure 7.1. Areas of origin of domesticated plants. (Adapted from Piperno and Pearsall 1998: figs. 3.18, 3.19) (Drawn by Kristin Smart)

Productive and undemanding, manioc produces more carbohydrates per edible portion than other lowland root/tubers. While "bitter" varieties must be processed to remove toxic cyanogenic glycosides, "sweet" varieties can simply be boiled or roasted. Research suggests an origin either in seasonal forests of inland Guianas/Venezuela or the cerrados of central Brazil. Olsen and Schaal (1999) argue that manioc was domesticated from *M. esculenta* subsp. *flabellifolia* on the southern border of the Amazon basin. Wild populations occur today in forest patches in west-central Brazil and eastern Peru. There are significant genetic differences between bitter and sweet landraces; each likely evolved separately after domestication (Elias et al. 2004). Perry's (2002) research into size and morphology of manioc starch suggests that coastal Peruvian and lowland Neotropical types have been separated for several millennia.

Mid- and High Elevation Roots and Tubers

Mid- and high elevation roots and tubers include potato (*Solanum tuberosum*), oca (*Oxalis tuberosa*), mashwa (*Tropaelum tuberosum*), ullucu (*Ullucus tuberosus*), and jicama (*Pachyrrhizus ahipa*). Except for potato, little is known of the ancestry of mid- and high elevation root/tuber crops. Oca and mashwa, with potato, were likely domesticated in central Peru to northern Bolivia. DNA analysis of the *Oxalis tuberosa* alliance, species related to oca, supports an origin in southern Peru and northwestern Bolivia (Emshwiller 2002).

At the time of Spanish contact, traditional tetraploid potatoes, *Solanum tuberosum* subsp. *andigena*, were grown throughout the Andes, from 2,000–4,000 masl (Hawkes 1990). Greatest diversity lies in the central Andes, and the primitive diploid domesticate, *Solanum stenotomum*, is grown from central Peru to central Bolivia. Northern Bolivia is home to *S. leptophyes*, a related wild diploid, leading Hawkes (1990) to propose the southern Lake Titicaca basin as the area of origin of *S. stenotomum*. Other researchers think it impossible to establish which wild diploid in the brevicaulis-complex is ancestral (Van Den Berg et al. 1996), making it difficult to narrow the range.

Pseudocereals

Here I consider quinoa (*Chenopodium quinoa*), cañahua (*C. pallidicaule*), and amaranth (*Amaranthus caudatus*). Quinoa, cañahua, and amaranth were traditionally cultivated in high elevation, semi-arid regions with potato, other Andean tubers, and tarwi (lupine). Domesticated quinoa is tetraploid, and probably originated from a wild tetraploid. *C. hircinum*, occurring today in lowland Argentina, is one possible ancestor, but the highlands of southern Peru and Bolivia are a more likely domestication center. Cañahua may have originated as a grain and forage crop of extreme elevations. Andean amaranth is closely related to Mexican domesticated amaranth, *A. cruentis*, and may have emerged from it. However, *A. hybridus*, the progenitor of Mexican amaranth, has a widespread range that includes the Andes. Andean amaranth is grown in temperate valleys of Peru, Bolivia, and northwestern Argentina.

Maize

Maize (*Zea mays*) was widespread in the Andes at contact and adapted to a broad range of habitats. DNA studies indicate that wild *Zea mays* subsp. *parviglumis*, Balsas teosinte, gave rise to maize. Balsas teosinte is native to the tropical deciduous forest of southern and western Mexico, precluding an independent South American origin of maize. The maize that spread out of Mexico was primitive, characterized by small cobs and kernels. Maize evolved into a productive crop throughout its range.

Legumes (Pulses)

Legumes include peanut (*Arachis hypogaea*), jack bean (*Canavalia plagioperma*), common bean (*Phaseolus vulgaris*), lima bean (*Phaseolus lunatus*), and lupine (*Lupinus mutabilis*). Pulses are available for every Andean environment. Peanut, adapted to seasonal environments with higher rainfall and dry weather for ripening, was likely domesticated from crosses between wild allotetraploid *A. monticola*, found from 1,400–2,800 masl in northwestern Argentina, and two wild diploids, *A. batizocoi* and

an unidentified species from south Bolivia/northwestern Argentina. The ecology of wild species and traditional cultivars suggests ancestral peanuts occupied riverine habitats in open environments.

The ancestry of jack bean is not well understood. Wild *Canavalia* species are common along coasts, in secondary vegetation, and along rivers. Domesticated *C. plagioperma* is tolerant to drought, salinity, and low-fertility. Coastal South American or lowland Bolivia/northwest Argentinean origins have been suggested.

Common and lima beans were widely grown at contact in the Andes. Separate species were domesticated in Mesoamerica and South America. Wild common beans in the mid-elevation Andes gave rise to small-seeded (Colombia, Mexico, Central America) and large-seeded (southern Andes) cultivars. Traditional cultivars in northern Peru and Ecuador share traits with both gene pools. Wild lima beans growing in low to mid-elevation from Colombia to Argentina gave rise to large-seeded (western Andes of Ecuador, northern Peru) and small-seeded (Central America/northern South America) cultivars. Multiple domestications and hybridizations are likely.

Lupine is cultivated from 2,000 to 3,850 masl, above the range of *Phaseolus*. Rich in protein and oil, lupine has a high alkaloid content, and seeds must be processed. Lupine displays wide genetic diversity; it originated from an unknown ancestor in the sierra of Ecuador, Peru, or Bolivia.

Squashes

Three squashes—*Cucurbita moschata*, *Cucurbita maxima* and *Cucurbita ficifolia*—were cultivated for food. The domesticated squashes were derived from separate ancestral species. With wild squashes characterized by bitter flesh, early use focused on seeds and containers. *C. moschata* is the lowland tropical forest squash. The ancestor is unknown, but related wild species occur in northern Colombia and coastal Panama. *C. maxima* is cultivated throughout the western Andean slopes. It may be derived from *C. andreana*, found today in Uruguay and Argentina. *C. ficifolia* is a high altitude, cool-tolerant species that ranges from Mexico to Bolivia, occurring in the wild in Bolivia.

Gourd

The bottle gourd (*Lagenaria siceraria*) is an industrial plant. Although ubiquitous in the archaeological record, gourd is not a New World native. Rather, it is believed that African gourds were washed out to sea in the Atlantic and floated to coastal Brazil or northern South America. Bottle gourds can be grown throughout the tropics, subtropics, and into the temperate zone. The flesh is too bitter to eat, but the oily seeds are edible, and gourds make durable containers and floats.

Fibers

Cotton (*Gossypium barbadense*) was a premier industrial plant. *Gossypium* species are sun-loving plants adapted to dry conditions. Wild tetraploid species evolved in Pacific coastal Mesoamerica or South America from hybridization between a native diploid and one introduced from Africa or Asia. Wild *G. barbadense* and *G. hirsutum* emerged from this tetraploid stock, and were separately domesticated, *G. barbadense* in northwestern South America west of the Andes, and *G. hirsutum* in Mexico.

Spices

The Andean diet was flavored by a range of hot peppers or chile peppers: *Capsicum frutescens*, *C. baccatum*, *C. pubescence*. Domesticated chile peppers have a large array of forms, and feral, weedy, and intermediate cultivars are common within each species. *C. baccatum* was domesticated in the southern South American lowlands, in isolation from a domestication center in the northern lowlands that gave rise to *C. frutescens*. These lowland species overlap today, and their ecological preferences are not well understood. *C. pubescens* is likely to have originated in mid-elevation Bolivia.

Stimulants

Coca (*Erythroxylon coca*, *E. novogranatense*) gave rise to cultivated coca (Plowman 1984). Huánuco coca (*E. coca* var. *coca*) is the source of commercial coca; it is distributed along the eastern Andean slopes and wetter valleys from Ecuador to Bolivia and northwestern Argentina, and occurs wild there. Trujillo coca (*E. novogranatense* var. *truxillense*) is cultivated today on the Peruvian north coast from 200–1,800 masl, and in the Marañón basin. It is drought resistant, and probably originated from the adaptation of Huánuco coca to drier habitats. Colombian coca (*E. novogranatense* var. *novogranatense*) is grown today in arid and moist regions in Colombia, and likely arose in the northern Andes from Trujillo coca.

Fruits and Nuts

Arboriculture is a component of Andean agriculture in both rain-fed and irrigation-based locations on the coast and low to mid-elevation valleys. The following species likely originated in the Andes: cherimoya (*Annona cherimolia*), papaya de monte (*Carica pubescens*), pepino (*Solanum muricatum*), tree tomato (*Cyphomandra beta-cea*), lúcuma (*Pouteria lucuma*), and paca (*Inga Feuillei*). In addition, ciruela de fraile (*Bunchosia armeniaca*), native to the Amazon, guava (*Psidium guajava*) and achiote (*Bixa orellana*) of unknown origins, avocado (*Persea americana*), domesticated in Central America/northern Andes, and a number of palms are documented prehistorically in the Andes.

ARCHAEOLOGY OF PLANT DOMESTICATION AND AGRICULTURE

Flotation and fine sieving by archaeologists have improved our understanding of plant domestication and agriculture, as has AMS (Accelerator Mass Spectrometry) dating of crop remains and analysis of pollen, phytoliths, and starch microfossils from sites, artifacts, agricultural fields, and coprolites. Naturally accumulating sediments in lakes, swamps, and alluvial settings document human modification of environments associated with agriculture. All these sources inform this overview. Citations to the primary literature summarized here are from Pearsall (1992, 2003) and Piperno and Pearsall (1998), unless other sources are cited.

Early Record of Plant Domestication, 8000-2500 BC

Ecuador

The record begins just after 8000 BC with squash (*Cucurbita*) phytoliths from strata dated to 7740 BC at the Vegas type site (7800-4600 BC) (Figure 7.2) in coastal Ecuador, and documentation of an increase in phytoliths to domesticated size by 7000 BC, when llerén appears. Maize phytoliths occur at Vegas before 5000 BC. The record of maize continues in the Valdivia Period at Real Alto (3500-1800 BC) and Loma Alta sites (3000-2000 BC), and cotton and jack bean appear for the first time in Early Valdivia. By the Valdivia 3 phase (2800-2400 cal. BC), maize is ubiquitous in domestic and ceremonial contexts at Real Alto (Pearsall et al. 2004), and achira, manioc, and arrowroot are documented. Gourd is positively identified in Late Valdivia, but is likely to have appeared earlier.

Colombia

Tree crop and tuber domestication, with subsequent introduction of maize, is documented in the Colombian sierra. Arrowroot (*Maranta* cf. *arundinacea*) starch was recovered from a ground cobble from the San Isidro site (8050 BC, 7539 BC) in the upper Cauca Valley. Macroremains include *Acrocomia*, other palms, and *Persea*. Pollen indicates a forested environment with some clearance. In the Calima region, the middle Cauca Valley, Sauzalito (7670-7550 BC) and El Recreo (5980-5780 BC) have palm and *Persea* macroremains in association with hoes, grinding stones, and palm and arrowroot family phytoliths. Pollen cores in the area document maize and small-scale forest clearance at 4680 BC. A core from Hacienda Lusitania contains maize pollen below a stratum dated 3150 BC, with forest decline and disturbance indicators, and at Hacienda El Dorado maize is continuously present starting at 4680 BC. A core from Paramó de Peña Negra I in the Bogotá plain documents maize pollen continuously from 6320-3210 BC, with forest disturbance and burning indicators. Another core in the region shows maize in strata just above 4630 BC, also associated with disturbance.

Peru

Plant domestication appears in the Peruvian highlands contemporaneously with its appearance in northern South America. Potato, manioc, sweet potato, ullucu, and jicama were recovered from Tres Ventanas Cave in strata dated to 8000-6000 BC. A tuber was AMS-dated to 5000 BC (Hawkes 1990). Oca, *Capsicum chinensis*, lúcuma, and common and lima beans were recovered from Guitarrero Cave (8000-7500 BC). However, AMS dates for one common bean (430 BC) and two lima beans (1495 BC, 1325 BC) do not support the associated early dates (Kaplan and Lynch 1999). Caves in the Ayacucho region preserve gourd, quinoa and *Cucurbita andina* (5800-4400 BC), common bean, lúcuma, coca, *Solanum* and maize (4400-3100 BC), and *Cucurbita*, *Gossypium*, *Capsium*, and achira (3100-1750 BC). At the Quebrada de Las Pircas sites (6200-5500 BC), squash, quinoa, manioc, ciruela de fraile, and peanut are present. AMS dates on squash, peanut, and quinoa remains returned modern dates; Rossen et al. (1996) argue these should be rejected, since the morphologies of the domesticates are not modern.

On the Peruvian coast, evidence for domesticates comes from the Middle Preceramic Siches Complex (6000-4000 BC), where bottle gourd was recovered, and from La Paloma



Figure 7.2. Archaeological sites, regions, and field complexes discussed in the text. (Drawn by Kristin Smart)

(5700-3000 BC), which documents gourd, squash, guava, and *Phaseolus*. Gourd, squash, and *Phaseolus* also occur at Chilca 1 (3700-2400 BC), where achira, jicama, and jack bean appear for the first time.

Chile and Argentina

Domesticated plants dated before ca. 500 BC-AD 1 are limited, and few new data are available. *Capsicum*, common bean, and maize were recovered from strata dated to 7670-6720 BC in Huachichocana ChIII (Valliserrana region, Argentina). Maize, *Capsicum*, *Phaseolus*, *Solanum tuberosum*, gourd, and *Cucurbita* are documented in strata dated to 2500-500 BC at Huachichocana Cave, Quebrada de Inca Cave, Puente del Diablo, and La Gruta I. Maize was recovered on the Chilean coast and in the Atacama oases at Tiliviche 1-b (5900-4110 BC), Camarones 14 (5470-4665 BC), Quiani shell mound (4220-3680 BC), Tarapaca (4880-2830 BC, 2740 BC), and San Pedro Viejo Pichasca (2750 BC). Cotton, quinoa, maize, and gourd occur in levels dating ca. 2500 BC-AD 1 at the Quiani II site, and maize is present at 1760 BC at Tulan Cave.

In a study of grinding stones from sites in Antofagasta de la Sierra, northwestern Argentina, Babot (2004) recovered microfossils that support relatively early dates for domesticates in the far southern Andes. Tools from sites dating before 3400 BC (one each from Cueva Salamanca I and Quebrada Seca 3) contained pulse, possible gourd, and grass residues. Tools from three sites dating between 3400 and 1200 BC (nine tools) contained residues of maize, quinoa, amaranth, oca, achira, ulluco, potato, and *Cucurbita*. Evidence for processing *Acrocomia* palm fibers was also found. Babot's results indicate archaeologists should look closely at sites in the 3400-1200 BC time range for local domestication and crop introductions. Combining artifact-based residue analyses and AMS dating of macroremains might reveal much.

Discussion of Early Andean Plant Domestication

What are the cultural and ecological contexts of early Andean plant domestication? The best early forager sites in wetlands and forests indicate generalized subsistence economies that included nuts, fruits, stems, and roots or tubers (Dillehay and Rossen 2002). At Monte Verde (10,500 BC) in southern Chile, for example, stone and wooden tools for exploiting wetland and forest plants were recovered, as were over sixty plant species. Inhabitants exploited patches in different zones, and targeted wetlands with year-round tuber supplies. Over fifty kinds of wild seeds or fruit fragments were recovered from San Jacinto 1 (4000-3300 BC; Bonzani 1998) in the northern Colombian lowlands; many unidentifiable, open and wet habitat plants were present, including rhizome-producing species. Early sites in forested settings with domesticated plants—Vegas, Quebrada de Las Pircas, San Isidro, Sauzalito, El Recreo—show diversified plant-oriented economies with root/tuber and tree crops. The addition of domesticated species appears to be an outgrowth of foraging, the creation of patches of useful plants.

Contexts of plant domestications in the Andean highlands appear distinctive. The highlands were occupied after 9000 BC, when non-glacial settings were established (Aldenderfer 1999). There were opportunities and constraints on people moving into the Andes between 9000-7000 BC. Summers were cooler and shorter; temperature warmed but aridity increased; hypoxia stressed populations. Shrinking of glacial-age lakes created more terrain, and cold-adapted plants and animals moved into higher elevations, creating high terrestrial biomass.

This “pulled” people into the highlands. Perhaps they initially dwelled in base camps below 2,500 masl, the point at which humans begin to experience hypoxia. If this settlement scenario is correct, mid-elevation root/tuber crops were perhaps the first focus of human selection in better-watered locations, such as eastern Andean valleys, with higher elevation crops like potato, lupine, and quinoa exploited later, but eventually becoming dominant.

Is there a relationship between camelid and plant domestication? Moore (1989) proposes that camelid domestication occurred where puna-based guanacos and vicuñas lived in proximity to valley bottom agricultural villages. With evidence in central Peru for control of early domesticated camelids at 4000-3500 BC, and managed herds by 3500 BC (Wheeler 1995), perhaps this region was the locus of domestication of Andean tubers, pseudocereals, and lupine. There is some support for camelid-plant linkage from Ayacucho, where quinoa and *Cucurbita andina* occur in strata dated to 5800-4400 BC; domesticated llamas appear in the subsequent phase, 4400-3150 BC; and alpacas appear at 3000 BC. The camelid-plant domestication issue still remains to be investigated.

Maize is documented in Andean Colombia before 6000 BC, and in southwest coastal Ecuador before 5000 BC. Maize had spread rapidly through the tropical forests of Central America and northern South America to which it was pre-adapted. Given its occurrence in coastal Ecuador, the lack of early maize in the Ecuadorian sierra is likely due to site burial, and few environmental records. Maize is probably truly absent at early sites in the northern Peruvian Andes and coast where it is too dry on the coast, western valleys, and basins; and too high in the better-watered altiplano. Primitive maize would produce poorly in comparison to root and tuber crops, especially under rainfall cultivation. If maize in strata dated to 4400-3100 BC in the Ayacucho caves is this age, then limitations to drier conditions were overcome by this time, opening entry into the far southern Andes. Recent research at the Waynuna site in the southern Peruvian Andes (Perry et al. 2006) places maize this far south by 1600–2000 cal yr. BC. Maize microfossils were recovered from stone tools and soil samples. Starch was very common, and phytoliths also occurred. Maize may have spread earlier from Ecuador to Argentina through the better-watered eastern Andes. Only more research will resolve these issues.

Domestication of various plants was underway in southwest Ecuador/northern Peru before maize arrived: local domestication of squash, cotton, and jack bean, and a possible hearth of achira, llerén, and arrowroot. A domestication center in this area makes sense from plant distributions, and the suite of crops includes carbohydrates, legumes, and utility plants.

Presence of manioc and peanut at Quebrada de Las Pircas, and manioc and sweet potato at Guitarrero Cave, suggests that there is an ancient pattern of interconnectedness between the sierra and eastern Andes. Exchange among early farming settlements in seasonal environments moved peanut, manioc, and sweet potato from south of the Amazon basin (or manioc and sweet potato from north) into similar habitats in the lower elevations of the sierra, and eventually to the coast north of the desert. Introduction of manioc to coastal Ecuador may have provided a push to population expansion in Late Valdivia times.

The Later Record of Agriculture: Post-2500 BC

Peruvian Coast

In comparison to early domesticates, crop richness by site surges in the Cotton Prece-ramic/Prece-ramic VI/Late Archaic Period (ca. 2600/2200-1800/1500 BC) (Table 7.1). At most sites nine to fifteen cultivated plants are present. A total of eighteen crops are

Table 7.1. Botanical database for coastal Peruvian sites. (from Pearsall 2003: table 3). A=abundant, MA=moderately abundant, P=present, R=rare, VA = very abundant, VR=very rare. (See Pearsall 2003 for literature citations).

	Middle Preceramic					Cotton Preceramic						
	Quebrada de Las Pircas ^a	Paloma ^b	Chilca I ^c	Los Gavilanes ^d	La Galgada ^e	Aspero ^f	Huaca Prieta ^g	Huaynuna ^h	Las Haldas ⁱ	Padre Alban ^j	Alto Salaverry ^k	El Paraiso ^l
Plant	6200–5500 B.C.	5700–3000 B.C.	3700–2400 B.C.	2700–2200 B.C.	2662–2000 B.C.	2410–2200 B.C.	2400 B.C.	2250–1775 B.C.	2010–1795 B.C.	1980–1729 B.C.	1800–1500 B.C.	
cotton				P	P	P	P	A	A	P	P	A
gourd		P	P	P	P	P	P	A	A	P	P	R
squash	P	P	P	P	P	P	P	MA		P	P	MA
chili, <i>aji</i>				P	P	P	P	R		P	P	R
<i>quinoa</i>	P											
potato								R				
sweet potato				P			P	R				
<i>achira</i>			P	P	P	P	P	R				R
manioc, <i>yuca</i>	P			P								
<i>jicama</i>			P	P								MA
<i>lucuma</i>				P	P		P	MA			P	A
guava		P		P	P	P	P		VR		P	A
avocado				P	P				VR		P	
<i>pacae</i>				P	P	P	P				P	MA
<i>ciruela de fraile</i>	P				P		P				P	
soursop				P								
common bean					P		P					R
lima bean				P	P		P				P	R
<i>Phaseolus</i> spp.		P	P	P		P		R				
peanut	P			P								
jack bean			P									
maize, corn			P		P		P					

Table 7.1. Botanical database for coastal Peruvian sites. (from Pearsall 2003: table 3). A=abundant, MA=moderately abundant, P=present, R=rare, VA = very abundant, VR=very rare. (See Pearsall 2003 for literature citations).

Plant	Initial Period					Early Horizon			
	La Galgada ^m 2085– 1395 B.C.	Pampa de Las Llamas-Moxeke ⁿ 1785–1120 B.C.	Las Haldas ^o 1645– 1190 B.C.	Gramalote ^p 1650– 1100 B.C.	Cardal ^q 1100– 850 B.C.	Tortugas ^r 1040–895 B.C.	San Diego ⁱ 810–450 B.C.	Pampa Rosario ^u 550–295 B.C.	Li-31 ^v Viru-127 ^w
cotton	P	VA	A	A	P	VA	MA	A	P
gourd	P	A	A	A	P	A	MA	A	P
squash	P	A		A	P	MA	R	R	P
chili, <i>aji</i>	P	A	R	P	P	MA	R	MA	P
<i>quinoa</i>									
potato		MA to A	R			R			
sweet potato		MA to A				R			
<i>achira</i>		MA to A					MA	R	
manioc, <i>yuca</i>		MA to A				R	MA	R	P
<i>jicama</i>						R			
<i>lucuma</i>	P	A	A	P	P	A	R	VR	P
guava		MA			P	VR	R	MA	P
avocado	P	A		P	P	VR	R	MA	P
<i>paca</i>	P	R	R		P		R	VR	P
<i>ciruella de fraile</i>	P	R	R	P			R	A	P
soursop									
common bean		R to MA	MA			VR	R	A	
lima bean		R to MA	R			MA	A	A	
<i>Phaseolus</i> spp.					P				P
peanut	P	VA	MA	A	P	A	A	A	P
jack bean		R		P			R	R	P
maize, corn	P				P	MA	A	A	P

documented, including seven new taxa: cotton, chili peppers, lúcuma, avocado, paca, soursop, and sweet potato. Domesticated common bean and lima bean are also present. Jack bean, gourd, squash, achira, jicama, manioc, peanut, and guava occur at Cotton Preceramic sites, while quinoa disappears. While some fruit trees and cotton are local, all other new crops were introduced from the sierra or eastern lowlands. There is increased reliance on plants in general, and on domesticates in particular, but no single plant food dominates. Site location, with some exceptions, was to take advantage of maritime resources. Cotton is widespread and abundant, reflecting a focus in local economy.

The Initial Period (2000/1500-1100/800 BC) and Early Horizon (800-400 BC) are similar in crop richness. During the Initial Period the rate of introduction of new crops slows. Maize is now present in reliable contexts, potato appears, and soursop disappears, giving nineteen domesticated plants. Maize and manioc are documented at only two sites, however, while peanut becomes widespread. Use of fruit trees continues; occurrence of root crops becomes spotty. Overall, the crop base remains broad. Throughout the central and north coasts there is a settlement shift in the Initial Period to locations adjacent to productive lands in the lower and middle valleys. There is a slight decline in crop richness in the Early Horizon, with disappearance of potato, sweet potato, and jicama. Tree fruits also appear to be less abundant. Maize occurs at five Early Horizon sites.

Coastal Peruvian agriculture was practiced in river valleys, timed to seasonal flow between January and May (Denevan 2001). Early agriculture was oriented to self-watering alluvial lands along rivers and their outflows, and in locations where short ditches or embankments could guide water. Diversion embankments are preserved in the Chilca Valley and the Santa Elena Peninsula, Ecuador (where they are called albarradas). Irrigation was practiced from southern coastal Ecuador to central Chile, in intermontane Andean valleys, the altiplano of southern Peru/northern Bolivia, and some valleys along the Caribbean. In Peru, canal irrigation is documented in twenty-five to thirty coastal valleys, with the largest system and area irrigated on the north coast dating to AD 1000. Small ditch irrigation began 4000-3000 BC in the Zaña Valley. At La Galgada, crops requiring irrigation are present beginning 3000-2400 BC. Significant maize cultivation in the dry coast or sierra would have depended on irrigation. Shift of site locations during the Initial Period to inland valleys, and the appearance of maize, likely signal the beginnings of canal irrigation.

Lake Basins, Inter-Andean Valleys, and Altiplano

The shift to agriculture in the highlands is linked to creation of productive agricultural lands through landscape modification, which served population expansion fueled by increasingly productive crops. The basic forms are irrigation, terracing, and raised fields (Denevan 2001).

Irrigation was practiced in many inter-Andean valleys, where it supplemented rainfall. Peruvian valleys are typically narrow, leaving little land for irrigation. Larger basins in the northern Andes were extensively irrigated. Irrigation canals are common in the Lake Titicaca altiplano; canals associated with raised fields carried water away from the lake. Irrigated bench terraces at Huarpa settlements near Ayacucho date to 200 BC-AD 600.

Terracing extends discontinuously from Venezuela to Chile and northwestern Argentina, with heavy concentrations of irrigated terraces in south highland Peru (including around Cuzco), in western valleys of central and southern Peru, and in northern Bolivia. Expanses of rain-fed terraces occur in the eastern Peruvian Andes and southern Ecuador.

Check dams and cross channel terraces are the simplest forms. These are built across intermittent streams, with crops planted in soil accumulating behind terrace walls. Sloping-field terraces are the most common type. Retaining walls running across a slope accumulate soil and control run-off. Bench or staircase terraces are long, narrow expanses of level, deep soil held by high stone retaining walls. Water drainage systems were built as part of terraces, and many are irrigated. Broad-field terraces are wider versions of bench terraces with low retaining walls. Terraces alter field microclimates, optimizing production, reducing risk, and permitting cropping in less favorable settings. Considerable labor is required to build and maintain terraces. These factors suggest that terrace origins are related to demographic pressure and expansion of highland agriculture. Like irrigation canals, terraces are difficult to date. Fill of an un-irrigated bench terrace in the Colca Valley dates to 2480-2320 BC, and irrigated terraces dating to 2400-1395 BC have been identified at La Galgada. Large expanses of irrigated terraces are associated with Huarpa sites in the Ayacucho basin, and with Huari (beginning AD 600).

Ridged or raised fields are artificially elevated earthworks that improve drainage and provide planting surfaces in wetlands (Denevan 2001). Swampy land can also be cultivated by digging ditches to drain away water, rather than building up soil. The largest expanses of raised fields in the highlands are in the Sabana de Bogotá (Colombia), northern Andean Ecuador, and Lake Titicaca basin.

The Lake Titicaca region provides excellent data on highland landscape modification and agricultural evolution. The Tiwanaku state supported dense populations in a region marginal for agriculture through raised field technology and selection of nutritious local crops like potato, quinoa, and lupine (Morris 1999). Approximately 25,000 ha of raised fields were built on flat or gently sloping land. Fields functioned for thermal protection, provided higher fertility through mucking, and retained water during droughts and drained it in floods.

On the south side of Lake Titicaca no evidence was found for raised fields associated to the Early-Middle (1500-200 BC) Chiripa complex or Late Formative period (200 BC-AD 500). This suggests that *extensive* forms of agriculture were practiced in piedmont locations during the Formative, or small-scale raised field cultivation. Erickson (1987), however, documents two-phases of raised field construction in the northwest (Peruvian) basin: first during the Early and Middle Formative period (1500-200 BC), and then in post-Tiwanaku times, with disuse during the Tiwanaku period itself.

Based on research in the Bolivian Lake Titicaca basin, Janusek and Kolata (2004) argue that local communities first developed and organized raised fields, but intensification and collapse of the system was associated with the rise and fall of Tiwanaku. Dates indicate no field construction earlier than AD 600 (Tiwanaku IV), with most affiliated to Tiwanaku V, especially in AD 950-1150. Post-Tiwanaku people abandoned fields.

A study of *Chenopodium* from Chiripa (Bruno and Whitehead 2003), on the south side of Lake Titicaca, supports Middle Formative agriculture intensification. Both domesticated and weedy quinoa was found in Early Formative contexts. Around 800 BC, domesticated quinoa began to dominate, in association with increases in stone hoe numbers. Middle Formative farmers became more focused cultivators of quinoa, and created formal fields. Further evidence for agricultural intensification comes from Tarata, Bolivia, where a large system of floodwater and canal irrigation functioned by AD 700, and is estimated to have begun about 1500 BC (Zimmerer 1995). This technological advance allowed agriculture to expand into semiarid and subhumid environments at mid-elevations (2,000-3,500 masl). Zimmerer (1995) suggests that irrigation was contemporaneous in the sierra, western coast, and low western inter-Andean valleys.

In a study of the onset of political differentiation among the Wanka in Jauja, central Peru, Hastorf (1993) tracks change in social and political organization through study of changes in intensive agriculture, arguing that an optimal agricultural scheme illustrates the productive strategies of a particular culture. Through study of paleoethnobotanical data of crop production she traces the process of political centralization and emerging inequalities from Early Intermediate Period/Middle Horizon through the Late Intermediate Period.

The “missing” record of agriculture in highland Ecuador begins just after 2000 BC. Abundant maize is documented to the base (1890 BC) of a core in Lake San Pablo. At nearby La Chimba (640 BC-AD 300: Middle Formative, Late Formative, and post-Formative periods), maize and potato are ubiquitous in Middle Formative strata. Cotton occurred down to 560 BC, oca in Late Formative contexts (390 BC- AD 100). At Nueva Era, Middle and Late Formative occupations (1100-500 BC) document maize down to the lowest levels of the site. Maize also comes from the earliest level at Cotocollao (1545-500 BC), in association with tree fruits, root/tubers, and lupine.

Human modifications of highland environments were not limited to field construction and irrigation. Evidence exists today for human influences on the tree line that are relevant to the “naturalness” and origins of paramo (Sarmiento 2002). Farmers clear increasingly higher forests, which are kept open by fire and become paramo-like. In the early twentieth century, valley floors below 3,000 masl were forested; now the agriculture/forest frontier lies at 3,200–3,400 masl. In an overview of well-dated pollen sequences from Colombia, Marchant et al. (2004) document clear patterns of degraded vegetation at two sites dated to AD 1–500, and by AD 1000 the majority of coring sites document degraded vegetation.

Humid Lowlands

Large expanses of raised fields are located in the Mompos Depression (northern Colombia) and the Guayas Basin (coastal Ecuador) (Denevan 2001). Research at the Peñon del Rio complex, Ecuador, discovered buried fields dated to 500 BC- AD 500 (Regional Developmental Period) and larger, visible fields dated to AD 500–1500 (Integration Period). Maize phytoliths were identified from early and late fields (Pearsall 1987). Cultures prior to the Milagro-Quevedo chiefdom of the Integration Period began the process of raised field construction and agricultural intensification in this region of large-scale flooding and tidal influx.

Agriculture also intensified in the lowlands in the absence of built environments. Research into the emergence and evolution of complex societies in the Jama River Valley, coastal Ecuador documented agricultural evolution in a dry tropical forest over a 4,000-year period (Pearsall 2004; Zeidler and Pearsall 1994). After initial settlement in terminal Valdivia, and cultivation of small alluvial pockets, populations expanded, fields were cleared in forested uplands, and expanses of land maintained in increasingly open conditions. This tropical forest agricultural system based on roots and tubers (achira, arrowroot, llerén, manioc), common bean, maize, gourd, squash, cotton, and some twenty tree fruits rebounded from a massive volcanic ash fall at AD 400. Marchant et al.’s (2004) pollen overview documents degraded vegetation by 3000 BC at Boca de Lopez on the Colombian north coast, further indicating the agricultural focus of societies in the lowlands of the lower Magdalena prior to raised field construction.

Discussion of the Later Record

As agriculture evolved, it spread into all suitable environments in the Andes, with landscape modification opening up or increasing the potential of previously unsuitable or

geographically limited environments. Technological innovations increased productivity in the arid coast, steep Andean valleys, altiplano wetlands, and lowlands of large river systems. With innovation came crop improvements, and evolution of landraces of staples like potato and maize well adapted to particular environments.

Andean agriculture was not sheltered from natural disasters: extended drought in the southern Andes led to abandonment of raised fields; El Niño events washed out irrigation systems; volcanic eruptions buried productive lands. The built nature of agricultural landscapes and high population densities intensified the impacts of these events. Intensive agriculture also negatively impacted Andean environments directly, leading to erosion and grassland expansion from deforestation and fallow shortening, and soil salinization from poor irrigation practices.

CONCLUSION

This review reflects my view, following Rindos (1984) that domestication is an outgrowth of forager-plant interactions, with no external “push” required, and that agriculture is a distinctive process of creating agroecologies. There are three thresholds of domestication and agriculture in the Andes, in common with other primary centers. First, in the Early Holocene there were frequent and dispersed plant domestications, some of which were advantageous and left a trace in the record. Second, early domesticates spread, sometimes widely, through social interactions among forager/horticulturalists. Cultivation was small-scale, in well-watered settings. Third, increasingly productive crops fueled population growth, which led to the spread of societies into new habitats that were dependent on agriculture, and creation of built environments for farming. This last is the most visible threshold of the process, having left its mark throughout the Andes on the landscape, in sediment cores, and in numbers of sites.

REFERENCES

- Aldenderfer, Mark, 1999, The Pleistocene/Holocene transition in Peru and its effects upon human use of the landscape. *Quaternary International* 53/54: 11–19.
- Babot, María de Pilar, 2004, *Tecnología y Utilización de Artefactos de Molienda en el Noroeste Prehispánico*. Tesis Doctoral. Universidad Nacional de Tucumán, Argentina.
- Bonzani, Renee M., 1998, Learning from the present. Constraints of plant seasonality on foragers and collectors. In *Recent Advances in the Archaeology of the Northern Andes*, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, pp. 20–35. Institute of Archaeology, UCLA.
- Bruno, Maria C. and William T. Whitehead, 2003, *Chenopodium* cultivation and Formative Period agriculture at Chiripa, Bolivia. *Latin American Antiquity* 14: 339–355.
- Denevan, William M., 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, Oxford.
- Dillehay, Tom D. and Jack Rossen, 2002, Plant food and its implications for the peopling of the New World: a view from South America. *Memoirs of the California Academy of Science* 27: 237–253.
- Elias, Marianne, Gilda Santos Mühlén, Doyle McKey, Ana Carolina Roa, and Joe Tohme, 2004, Genetic diversity of traditional South American landraces of cassava (*Manihot esculenta* Crantz): an analysis using microsatellites. *Economic Botany* 58: 242–256.
- Emshwiller, Eve, 2002, Biogeography of the *Oxalis tuberosa* alliance. *The Botanical Review* 68: 128–152.
- Erickson, Clark L., 1987, The dating of raised-field agriculture in the Lake Titicaca basin, Peru. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson, and Gregory Knapp, pp. 373–384. BAR International Series, 359.
- Hastorf, Christine A., 1993, *Agriculture and the Onset of Political Inequality before the Inka*. Cambridge University Press, Cambridge.
- Hawkes, J. G., 1990, *The Potato. Evolution, Biodiversity, and Genetic Resources*. Smithsonian Institution Press, Washington, D.C.

- Hernández Bermejo, J. E. and J. León (eds.), 1994, *Neglected Crops. 1492 from a Different Perspective*. FAO, Rome.
- Janusek, John W. and Alan L. Kolata, 2004, Top-down or bottom-up: rural settlement and raised field agriculture in the Lake Titicaca basin, Bolivia. *Journal of Anthropological Archaeology* 23: 404–430.
- Kaplan, Lawrence and Thomas F. Lynch, 1999, *Phaseolus* (Fabaceae) in archaeology: AMS radiocarbon dates and their significance for pre-Columbian agriculture. *Economic Botany* 53: 261–272.
- Marchant, Robert, Hermann Behling, Juan Carlos Berrio, Henry Hooghiemstra, Bas van Geel, Thomas van der Hammen, Luisa Herrera, Bert Melief, Guido van Reenen, and Michael Wille, 2004, Vegetation disturbance and human population in Colombia—a regional reconstruction. *Antiquity* 78: 828–838.
- Moore, Katherine M., 1989, Hunting and the Origins of Herding in Peru. Ph.D. dissertation. Department of Anthropology, University of Michigan.
- Morris, Arthur, 1999, The agricultural base of the pre-Incan Andean civilizations. *The Geographical Journal* 165: 286–295.
- Olsen, Kenneth M. and Barbara A. Schaal, 1999, Evidence on the origin of cassava: phylogeography of *Manihot esculenta*. *Proceedings of the National Academy of Sciences* 96: 5586–5591.
- Pearsall, Deborah M., 1987, Evidence for prehistoric maize cultivation on raised fields at Peñon del Río, Guayas, Ecuador. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson, and Gregory Knapp, pp. 279–295. BAR International Series, 359.
- , 1992, The origins of plant cultivation in South America. In *The Origins of Agriculture. An International Perspective*, edited by C. Wesley Cowan and Patty Jo Watson, pp. 173–205. Smithsonian Institution Press, Washington, D.C.
- , 2003, Plant food resources of the Ecuadorian Formative: an overview and comparison to the Central Andes. In *Archaeology of Formative Ecuador*. J. Scott Raymond and Richard L. Burger, pp. 213–257. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 2004, *Plants and People in Ancient Ecuador: The Ethnobotany of the Jama River Valley*. Wadsworth/Thomson, Belmont, CA.
- , Karol Chandler-Ezell, and James A. Zeidler, 2004, Maize in ancient Ecuador: results of residue analysis of stone tools from the Real Alto site. *Journal of Archaeological Science* 31: 423–442.
- Perry, Linda, 2002, Starch granule size and the domestication of manioc (*Manihot esculenta*) and sweet potato (*Ipomoea batatas*). *Economic Botany* 56: 335–349.
- , Daniel H. Sandweiss, Dolores R. Piperno, Kurt Rademaker, Michael A. Malpass, Adán Umire, and Pablo de la Vera, 2006, Early maize agriculture and interzonal interaction in Southern Peru. *Nature* 440: 76–79.
- Piperno, Dolores R. and Deborah M. Pearsall, 1998, *The Origins of Agriculture in the Lowland Neotropics*. Academic Press, San Diego.
- Plowman, Timothy, 1984, The origin, evolution, and diffusion of coca, *Erythroxylum* spp., in South and Central America. In *Pre-Columbian Plant Migration*, edited by Doris Stone, pp. 125–163. Peabody Museum, Harvard University, Cambridge, MA.
- Rindos, David, 1984, *The Origins of Agriculture. An Evolutionary Perspective*. Academic Press, Orlando.
- Rossen, Jack, Tom D. Dillehay, and Donald Ugent, 1996, Ancient cultigens or modern intrusions? Evaluating plant remains in an Andean case study. *Journal of Archaeological Science* 23: 391–407.
- Sarmiento, Fausto O., 2002, Anthropogenic change in the landscapes of highland Ecuador. *Geographical Review* 92: 213–235.
- Sauer, Jonathan D., 1993, *Historical Geography of Crop Plants. A Select Roster*. CRC, Boca Raton.
- Smartt, J. and N. W. Simmonds (eds.), 1995, *Evolution of Crop Plants*. Longman, UK.
- Van den Berg, R. G., N. Groendijk-Wilders, and J. P. Kardolus, 1996, The wild ancestors of cultivated potato: the brevicaulis-complex. *Acta Botanica Neerlandica* 45: 157–171.
- Wheeler, Jane C., 1995, Evolution and present situation of the South American Camelidae. *Biological Journal of the Linnean Society* 54: 271–295.
- Zeidler, James A. and Deborah M. Pearsall (eds.), 1994, *Regional Archaeology in Northern Manabí, Ecuador; Volume 1*. University of Pittsburgh Memoirs in Latin American Archaeology. Pittsburgh.
- Zimmerer, K. S., 1995, The origins of Andean irrigation. *Nature* 378: 481–483.

Animal Domestication in South America

PETER W. STAHL

INTRODUCTION

The dog (*Canis familiaris*) was already domesticated when early humans entered the western hemisphere. Over the ensuing millennia Native Americans domesticated comparatively few indigenous animals, in contrast to the many animals that were genetically and behaviorally modified from their wild ancestors through captive controlled breeding in the Old World. New World animal domesticates included only two large birds (the turkey in North America and muscovy duck, *Cairina moschata*, from Mexico south into South America), a medium-sized rodent (guinea pig, *Cavia porcellus*), and two camelids (llama, *Lama glama*, and alpaca, *Vicugna pacos*). Diamond (1999) explains this by suggesting that relatively few candidates appropriate for domestication survived the massive extinctions of the terminal Pleistocene, and that geographical peculiarities of the western hemisphere inhibited the subsequent diffusion of domesticates from their areas of origin.

MUSCOVY DUCK

First recorded on Guadeloupe in 1494 during Columbus' second voyage, domesticated muscovy ducks were quickly exported in the early sixteenth century to Europe where they were first described in 1555. Early European accounts identify muscovy ducks in the lesser Antilles, along the Caribbean shores of South America, and into Honduras and Mexico, where historic and archaeological sources suggest their use by the Aztecs. Many accounts from the northern and central Andes refer to these ducks, which were also likely to have been raised in the Amazon and northern portions of the southern cone. In 1532, Francisco de Xérez mentions that Atahualpa presented Pizarro with a duck that was used by the nobility as an aromatic powder or fumigant. The Portuguese, Spanish, and Dutch subsequently

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

dispersed specimens around the world. A comprehensive review of the muscovy duck can be found in Donkin (1988), with archaeological summary and osteological descriptions in Stahl (2005).

The muscovy (*Cairina moschata*) is a very large forest duck (order: Anseriformes, family: Anatidae), and member of the subtropical to tropical sharp-clawed perching ducks (tribe: Cairinini), which are characterized by long tails to facilitate braking for tree landing. Although the geographical origin of the muscovy is uncertain, it is neither from Moscow (muscovy) nor Cairo (*Cairina*). Its name may refer to musky smell (*moschata* from the Latin *moschatus*, “musky”), or might refer either to Mexico or the muysca Indians of Nicaragua’s Mosquito Coast. Indigenous names include: ñuñuma (Quechuan), jokik (Chimu/Moche), sumne (Chibcha), ipeca-guaçú (Tupi-Guaraní), and eváy (Panama). Historically, Cieza mentions the xuta from northern coastal Ecuador, and Oviedo the Colombian guayiz (quayaiz). Contemporary Latin American usage includes: pato real (royal), criollo (native), machacón (heavy), manso (tame), mudo (mute), casero (house), negro (black), almizclado/almizcarado (musky), perulero (Peruvian; also Nahuatl *perutótól*), bravo (wild), and do mato (forest). It is also known as Mairua or Oumeh in Guyana, and cotua in Peru.

In the wild, muscovy ducks are broadly distributed from Mexico to southern South America. In the north, they occur along both coasts of Mexico, from Sinaloa and Tamaulipas in the west and Nuevo León in the east. Their range continues southward through Central America and extends into forested lowland areas of South America, as far south as Peru on the western side of the Andes, and to northern Argentina and Uruguay in the east. Their wild range may also include Trinidad.

The muscovy duck is notable for its relatively large size which is characterized by marked sexual dimorphism. Large drakes can reach total lengths of 840 mm and weights of 4 kg, whereas female ducks are noticeably smaller, attaining total lengths up to 630 mm and weights of 1.5 kg. Wild muscovies appear grayish black ventrally, blackish with green and purple iridescence on the dorsal side, and display prominent white patches on their wing coverts. Drakes have bare faces and small fleshy caruncles distributed around the orbital region to the base of the bill, with prominent occipital and nuchal crests. Female faces are more prominently feathered.

Always found near water, the muscovy duck spends its night in trees and tends toward low forested swamps in the vicinity of rivers, small lakes, and mangroves. It never strays far from well-wooded areas except when it forages in flooded savannas during the wet season. Its extremely strong and fast flight produces a whistling sound; otherwise, the muscovy tends to be quiet. In the wild, it is crepuscular and flies in small groups or alone, but can gather in flocks of over fifty during breeding. A sedentary and polygamous duck, the promiscuous muscovy copulates freely with other ducks and is capable of reproducing in its first year. Breeding near sluggish rivers, it nests between palm fronds or in tree hollows from 3 to 20 m above ground where a clutch of 8 to 20 eggs incubates for up to 35 days. The highly territorial and omnivorous muscovy is an opportunistic feeder that eats aquatic animals and plants, reptiles, insects and termites, and is a nocturnal pest in crop fields.

Domestication can produce changes after two to three generations. A tendency toward albinism and notable loss of coloration produces greater variation in plumage color, which ranges from completely dark, through pied, to completely white. Domesticated males develop larger facial caruncles; however, the most noticeable change is prominent size increase as males reach 6 kg and females 2.5 kg in weight. Hardy and prolific domesticates mature much faster than their wild relatives, and with no fixed breeding season, each duck can produce from 120 to 150 hatching eggs. The meat of muscovy ducks is quite lean

in comparison to Asian domesticates. The strong maternal instinct of females is occasionally exploited for commercial brooding, while males are often used to produce large and hardy hybrids.

The archaeological record of the muscovy duck is poorly known and this makes assessment of the domestication process difficult. When recovered and identified, domestic duck specimens are not distinguished from their wild counterparts for lack of appropriate osteological criteria, although preliminary study suggests that skeletal size differences might be used to identify sex and domesticated status. Archaeological evidence of the muscovy duck is primarily concentrated in western South America. Three sites (El Hatillo, Sitio Sierra, Sitio Conte) in Pacific Panama include muscovy specimens from the terminal Pleistocene, to Coclé contexts in the first millennium AD. Four sites (Salango, Ayalán, Peñón del Río, Jerusalén) in the western lowlands of Ecuador record muscovy duck in the millennia after Christ. Muscovy specimens may be associated with Mochica occupations in the upper Piura River of northern Peru. Highly convincing ceramic depictions are found on Moche and Chimú vessels from the Peruvian north coast, and muscovy feathers have been identified in Chimú featherwork. Trade connections might explain some of this western distribution. Muscovy duck specimens are also identified in archaeological contexts from Venezuela, Trinidad, eastern Bolivia, and Incaic deposits in northwestern Argentina.

The area and circumstances surrounding early domestication are unknown. Some possible centers of domestication have been suggested, including the southern Caribbean shore, Paraguay and the Gran Chaco, and/or possibly the middle and lower Amazon. Its geographical distribution was likely augmented through trade, particularly considering that as a robust omnivore, the muscovy duck is easy to feed and transport. A number of factors likely contributed to its domestication. The muscovy's highly omnivorous diet and attraction to crop fields certainly facilitate feeding and accessibility. Some have speculated that these ducks were first used to control insects in sedentary agricultural communities. In parts of the continent, they are still used for pest control and for cleaning drains or ditches. Territorial, gregarious, promiscuous, fertile, and hardy, the muscovy duck is easy to breed, and readily adapts to life in captivity.

GUINEA PIG/CUY

When the Spanish arrived in the New World, the guinea pig (widely known by its Quechua name: cuy) was likely distributed throughout the Andean world from northwestern Venezuela to central Chile and northern Argentina. Its status in Central America is uncertain; however, an early 1519 document from the Darién refers to rabbits which entered native houses to breed. In 1547, Oviedo mentions the cori of Santo Domingo, which may be identified as cuy, surely an introduction from mainland Andean South America. The area and circumstances surrounding early cuy domestication are unknown, but the Central Andes have the longest and currently best-documented record of prehistoric association with humans. Cuy may have originally been chosen as a candidate for domestication owing to its commensal scavenging abilities, and its fondness for dark shelter and activity in dimly lit conditions (i.e., kitchens, where it can roam freely to feed on food scraps). Early colonial documents attest to the many non-dietary uses of cuy in Andean culture, including in divination and curing practices that originated in precolumbian times and that continue in the ethnographic present. In ancient times, cuy was regularly employed in sacrifice to placate gods, give thanks, prevent crop damage, and secure favors. Contemporary

ethnographic treatments about the Andean guinea pig can be found in Morales (1995) and Archetti (1997), with an archaeological summary in Wing (1986), and osteological descriptions in Hückinghaus (1962).

The guinea pig (*Cavia porcellus*) is a medium sized rodent (order: Rodentia, suborder: Hystricognathi, infraorder: Caviomorpha). It is one of 14 species within five genera of South American caviids (family: Caviidae). Recorded from the Middle Miocene, caviid rodents live in varied habitats throughout South America. Although consensus is lacking, the genus *Cavia* (from Tupian: sawiya 'rat' via Portuguese *cavia/savia*) can include as many as five species distributed over most of the continent except for easternmost Brazil and arid southern Peru and Chile. The domesticated form is today referred to as *wanku/wankuchi* (Aymara), *conejo cui* (rabbit cuy), *conejillo de las Indias* (little Indian rabbit), *conejo Peruano* (Peruvian rabbit), *conejo nativo* (native rabbit), *acuri/curi*, *huimbo*, *cobayo* or *huiro* (Colombia), *cobaia*, *porquinho da India* (Brazil), *acurito* (Venezuela), *curiel* (Cuba), and *cuy/quwe* (Quechua), which is preferred over the name "guinea pig." Guinea may alternately refer to Guyana, Africa's Guinea coast, or to a colonial monetary unit. The cuy's stout body, short legs, stubby tail, and the manner by which it was prepared for consumption may have reminded early Europeans of suckling pigs.

Authorities do not agree on important aspects of domestication. *C. porcellus* is the recently approved scientific name for the domestic cuy; however, its direct ancestry is in dispute. Many consider *C. aperea* as the likely wild ancestor, and include domesticated varieties within this species. *C. aperea* is described as a less robust version of the domesticated cuy that is widely distributed throughout much of South America, excluding most of Amazonia, southward to central Argentina. Disjunct populations of *C. aperea*, especially in northern South America, may be feral populations. Whereas certain authorities include *C. tschudii* as a subspecies of *C. aperea*, others not only consider the former as a distinct species but also identify it as the more likely wild ancestor. *C. tschudii*, in contrast to *C. aperea*, has a restricted distribution from Peru, south to northernmost Chile, and Tucumán and Jujuy in northwestern Argentina.

C. aperea is a crepuscular grazer that can live at high densities within a maze of surface tunnels. Coloration consists of a dark olive upper body with brown and black, and a pale underside. Individuals can reach total lengths of over 350 mm and weights of almost 800 g. Young cuys are fully developed at birth after an average gestation period of 62 days. In some areas, breeding is year round, with females producing up to five litters per year. Individuals are reproductively active after 30 days. *C. tschudii* also inhabits extensive runways that are constructed in thick grass and preferred moist habitats with scattered rocks between 2,000 and 3,800 masl. Multiple-entranced burrows are reported from Argentina. The coloration of *C. tschudii* is much more variable than *C. aperea*, and it is also somewhat smaller but with a comparable reproductive biology. Individuals reach reproductive age after two months.

Domestication has introduced considerable variation, especially through recent global interest in cuy for laboratory research and the pet trade. It is only in South America, particularly the Andes, that cuy continues to be a significant dietary option. Cuy meat is composed of 20.3% protein, which compares favorably with lean cuts of beef, lamb, pork, rabbit, and chicken; whereas its 7.8% fat content is much lower than other meats in general. Domesticated females have been observed to breed as soon as 20 days after birth, bearing litters of up to eight young. Production rates have been doubled under experimental conditions in the Andes, whereas commercial breeding in temperate areas has almost tripled annual production. Improved Andean strains have increased and sometimes doubled birth

weights, while normal mature weights reach, and often far exceed, 800 g. Changes in head shape and size have been associated with domestication. Osteometric study suggests that domestication has produced a shorter, flatter, and wider skull with a tendency for longer cheek tooth rows when compared to large wild specimens. Increased jaw height, measured at the middle of the diastema between the incisor and first lower molar, has been suggested as an osteological proxy for the increased size correlated with domestication. The conformation of the naso-frontal and fronto-parietal sutures, and the presence/absence of a palatal spine have also been used as criteria for discriminating wild from domesticated specimens.

Actual numbers of reported archaeological specimens is rarely high, possibly owing to its small skeletal size, relatively poor preservation potential, recovery bias, and attendant difficulties in identification. The Bogotá plateau of Colombia provides early contexts for cuy in the northern Andes. Specimens have been identified in levels dated 9000 to 5000 BC at Tequendama. Although cuy specimens are identified throughout the El Abra rockshelter sequence, from possibly as early as the eighth millennium BP, domesticated specimens are believed to appear only after 500 BC with the local introduction of pottery. Otherwise, early documentation of prehistoric cuy is restricted to Central Andean sites.

The earliest recorded appearance of cuy in the central Andes is from the Ayacucho area. Puente phase artifacts suggestive of human occupation between 8500 and 8160 BC are found in association with cuy bones at Jaywamachay, a rock shelter located in humid woodland at 3,350 masl. Late Puente phase artifacts dating to 7250 BC are associated with bones of, presumably collected or trapped, cuy at Ayamachay rock shelter at 3,000 masl. Inhabitants of Puente Cave in the thorn forest scrub ecozone at 2,500 masl, are believed to have collected or trapped possibly wild specimens during the early Jaywa phase around 6900 BC. With the exception of Puente Cave, the actual number of recovered cuy specimens is small. Preceramic collecting or trapping of wild specimens is inferred from associations of cuy specimens with bone triangular trap triggers; however, penning may also have been possible. The absence of triggers, and the presence of pits containing cuy specimens, suggests the use of hutches or penning in Piki phase context at Puente around 5470 BC.

A large charcoal filled depression in Chihua phase context from as early as 3600 BC at Ayamachay contained bones of a half dozen cuy. These specimens, and contemporaneous specimens from Rosamachay, just north of Pikimachay at 2,650 masl, are considered to be evidence for early domesticated cuy. Although these inferences are based mainly on the relative abundance of cuy specimens, jaw diastema height at Pikimachay is considered to be clear evidence of domestic varieties by the ceramic Chupas phase as early as 700 BC. In particular, a 400 BC cloth-wrapped Chupas phase cuy mummy from Rosamachay is likely that of a domesticated animal.

Although a few cuy specimens were identified in preceramic deposits at Guitarrero Cave in the Peruvian Callejón de Huaylas, it has been suggested that fully domesticated forms were initially introduced northward from the central Andes only in the first millennium BC. Significant amounts of cuy are recorded throughout the prehistoric sequence of human occupation in the 2,000 m thorn forest of the upper Huallaga Valley. However, despite their appearance since mid third millennium BC Kotosh Mito period context, it is not believed that these cuy specimens were fully domesticated.

Cuy has been reported in preceramic contexts during the third millennium BC at Cullebras and Los Gavilanes, and in early ceramic contexts during the second millennium BC at Curayacu. Cuy is identified in Early Horizon context from 900 BC at Chavín, and was recovered in Initial Period contexts from the far northern Cajamarca basin of Peru as early

as the late second millennium BC. Cuy becomes abundant on the Peruvian coast during the millennia before and after Christ.

North of Peru, cuy is identified in Late Formative contexts from the southern highlands of Ecuador possibly as early as 1470 BC. Cuy is found at a number of highland sites in the first millennium BC, which is roughly when it first appears in the western lowlands of Ecuador. Skeletal specimens tend to be relatively rare and are often found in non-utilitarian contexts to or from which *Spondylus* was exchanged, suggesting trade as a possible mechanism for its northward dispersion. Late prehistoric cuy is documented in extreme southern Colombia, surely an introduction from Ecuador. Cuy has also been identified from Hispaniola, where its introduction into the Caribbean must have been via maritime movement.

LLAMA AND ALPACA

Two domesticated camelid species are recognized, the llama (*Lama glama*) and alpaca (*Vicugna pacos*). Together, they comprise one-half of the extant New World camelids (order: Artiodactyla, family Camelidae), a mammalian family whose lineage can be traced to the Eocene of North America. In addition to llama and alpaca, two wild camelids, the guanaco (*Lama guanicoe*) and vicuña (*Vicugna vicugna*), currently inhabit portions of South America. A comprehensive description may be found in Franklin (1982), with useful accounts in Wheeler (1995), archaeological summary in Wing (1986), and osteological descriptions in Pacheco, Altamirano, and Guerra (1986).

The ancestor of the llama and alpaca was a llama-like form, *Hemiauchenia*, which entered the South American continent over a Panamanian land bridge toward the end of the Pliocene. The subsequent Pleistocene evolution of three new genera (*Paleolama*, *Lama*, *Vicugna*) in the Andes was followed by radiations of *Lama* into southern South America, and *Paleolama* into northern areas as far as Central America and the southern United States. Only *Lama* and *Vicugna* survived into the Holocene.

Confusion surrounding camelid taxonomy exists and involves some uncertainty about the ancestries of each domesticate. The successful crossing of all four New World camelids and subsequent generation of reproductively viable offspring, has led to the suggestion that each is a subspecific form of one species (*L. glama*). Others believe it best to consider each as separate species of one genus. Early on, it was suggested that the vicuña should be placed in its own genus (*Vicugna*) as it possesses open-rooted ever-growing incisors, unlike the closed-rooted incisors of guanacos and llamas. Recent genetic data tend to support this claim. Speculation surrounding the ancestry of domesticated camelids has therefore centered on four possibilities: llamas and alpacas are both derived from guanacos; llamas are derived from guanacos, and alpacas from vicuñas; llamas are derived from guanacos, and alpacas are domestic hybrids derived from crossing guanaco with an early domesticated llama; or, alpacas originated as hybrids produced through crossing guanaco and vicuña. Genetic study suggests that vicuñas may be ancestral to alpacas, with guanacos as the probable direct ancestors of llamas. Recent renaming of alpaca (*V. pacos*) has been fixed to accord with the molecular studies. Despite a persisting confusion amongst scientists of how to classify camelids zoologically, indigenous herders recognize a complex taxonomy for llama (Quechua) or qawra (Aymara), alpaca or paqocha (Quechua), and wari (a llama/alpaca hybrid also referred to as llamawari or paqowari depending upon which domesticated parent it most resembles). It involves potentially thousands of descriptive references

based upon gender, age, reproductive status, fleece quality, base color and assorted tones, and their distribution over the animal's body.

South American camelids are ruminants with three-chambered stomachs, and are characterized by a specialized cropping mechanism in which the lower incisors bite against an upper pad that is surrounded by a split lip. Vestigial incisors and canines are retained in *Lama*, with males possessing much longer canines. The camelids have long slender necks, lack tensor skin between thigh and body, and unlike most ungulates possess digitigrade feet with callous pads and divergent toes that bear nails rather than hooves. Camelids are pacers that swing lateral limbs in unison and place both hind and forefeet simultaneously on the ground in each step. South American camelids breed seasonally, with females generally beginning to reproduce as two-year olds. After roughly a year of gestation, single offspring are delivered in standing position.

The llama is the largest of the extant camelids, weighing 130 to 155 kg, and standing 109 to 119 cm at the shoulder. It is characterized by relatively coarse 20 to 80 μ m diameter wool. Llamas are generalized browsers and grazers like the guanaco, and can readily adapt to a wide range of culturally imposed conditions. They are currently tended at mid to high elevations between 2,300 and 4,000 masl from the central highlands of Ecuador south to northwestern Argentina. Llamas and alpacas are physiologically adapted to efficient oxygen intake and utilization at higher elevations. The llama prefers pasturing on dry tablelands, and feeds in tall Ichu bunch grass vegetation along slopes.

The alpaca is slightly larger than the vicuña, weighing between 55 and 65 kg, and standing from 94 to 104 cm at the shoulder. The alpaca is characterized by longer and finer wool. Alpacas are grazers like the vicuña, and appear to have the greatest dietary need for succulents, preferring bottomland bofedale vegetation. In South America, alpacas are mainly restricted to the high 4,400 and 4,800 masl Andes of Peru and Bolivia, with small populations in northern Chile and northwestern Argentina.

The guanaco is the largest of the wild South American camelids, weighing 100 to 130 kg and standing 100 to 120 cm at the shoulder. As generalized browsers and grazers, guanacos can be either sedentary or migratory depending upon local conditions and the seasonal need to relocate for forage. Although capable of inhabiting deserts, guanacos need to drink periodically, and are able to dissipate excess heat via bare skin on their flanks. Highly territorial guanaco populations vary demographically depending upon seasonal conditions, and tend to aggregate during winter months in the south. Otherwise, summer family groups consist of a territorial male, females, and juveniles younger than 15 months of age.

The vicuña is the smallest of the extant camelids, weighing 45 to 55 kg, and standing only 86 to 96 cm at the shoulder. Unlike guanacos, vicuñas are specialized grazers of low growing forbs and perennial grass on the high puna, where their very fine wool (finer than alpaca and coveted and obtained by Inca royalty) insulates against severe cold. Obligate drinkers, they must consume water at least once or twice during dry seasons. Vicuñas defend year-round territories in polygynous family groups composed of a male, females and juveniles under 11 months, or in groups of non-territorial males. Family groups feed, reproduce, and raise young in a feeding territory, and retire at day's end to a nearby sleeping territory.

Any understanding of early camelid domestication in South America is fraught with difficulty because of the ambiguity of osteological criteria used for differentiating between the different taxa. Limited dental criteria have been suggested. Archaeologically recovered permanent incisors with roots, parallel sides, and enameled upper labial surfaces match those of many extant alpaca. This has led to the tentative identification of prehistoric domesticates

and speculation about alpaca ancestry; otherwise, there is no similar evidence for post-cranial elements. Zooarchaeologists have proposed osteometric procedures that discriminate relative size within a continuum from small to large. Maximum dimensions, often from weight-bearing bones, are used in conjunction with univariate and multivariate methods for identifying small (*vicuña*/alpaca) and large (*guanaco*/llama) specimens. Unfortunately, it is difficult to sort wild from domestic individuals within each group because of high overlap.

As a result of these persistent difficulties, identification of domesticated taxa in the archaeological record is generally based on less direct evidence. This can include recovery and identification of camelid specimens in contexts outside of their natural wild range. Changes in population structure are also heavily relied upon for inferring the timing and location of early domestication. Taming or breeding is sometimes inferred from high proportions of juvenile and neonatal camelid specimens in and around human settlements. Evidence for increased reliance on domesticates is frequently based on a proportionate increase of camelid to deer specimens in different archaeological contexts. However, the reliability of these criteria is always open to question. The kind of specimen and its relative frequency in any archaeological context is probably more related to specifics of deposition rather than to relative dietary importance. Differences between ratio statistics are also usually correlated with sample sizes and not with ancient behavior. Often, the number of identified specimens in any archaeological context is directly associated with differential fragmentation, preservation, or identifiability, which may have little to do with prehistoric human behavior. These problems, along with methodological difficulties associated with accurately aging or sexing bone specimens, warrant the use of caution when evaluating zooarchaeological interpretations.

As with cuy, early contexts for camelid bones are found in the Ayacucho area. Specimens were deposited along with sloth, deer, and carnivore, at about 12,690 BC in Ayacucho phase context at Pikimachay, and limited numbers of camelid bone specimens were recovered at Jaywamachay in Puente phase occupations, possibly as early as 8600 BC. Camelid appears along with cuy in Puente phase context at Ayamachay around 7250 BC and in Jaywa phase context at the Puente site as early as 6900 BC.

Early camelid domestication may be documented in the high elevation puna sites between 4,000 and 4,900 masl. The predictable territorial social organization of wild camelids is suggested to have played a major role in early sedentism among prehistoric Andean populations. Before 5500 BC, camelid/deer ratios are interpreted as equal; however, about 6000 years ago in the Junín puna near 4,420 masl, it is believed that control of llamas and alpacas was apparent at Telarmachay rockshelter, followed by the establishment of a predominately herding economy some 500 years later. This interpretation is based on the gradual increase of camelid specimens and the corresponding decrease of deer specimens, along with dental evidence, and a marked augmentation of fetal and neonatal camelids at the site. These young animals are believed to have died from disease while penned, perhaps in unsanitary corrals, after which they were brought to the site and consumed. Roughly contemporaneous changes in the camelid/deer proportions are documented in the large faunal sample from the nearby site of Panaulauca at 4,100 masl. Based on similar evidence from other puna sites, these interpretations align with Elizabeth Wing's (1986) earlier claims that intensive use and initial control began in the puna from 5500 to 2500 BC with subsequent domestication from 2500 to 1750 BC.

Domesticated camelids are believed to have been dispersed outward from the Junín puna during the ensuing millennia, although some have claimed that a later center of camelid domestication had also developed 5000 years ago in the high puna of Argentina. In the Ayacucho area, the semi-nomadic herding of camelids between high and low elevations

appears no later than 1750 BC. Pastoralism had also been adopted in arid northern Chile by 1700 BC. Camelids are identified from roughly contemporaneous Initial period contexts in the northern Peruvian highlands and coast; however, their relative rarity and recovery in ritual contexts might suggest an early exotic status or their occasional use as pack animals. Evidence from the coast does suggest the maintenance of live animals. The relative abundance of camelids in late Initial period contexts at Chavín de Huantar may suggest that camelids assumed dietary importance at this time, becoming widespread throughout the northern highlands after 900 BC. The status of camelids north of Peru coincides with that of cuy, as it tends to be recovered in small quantities from specific contexts at sites involved in *Spondylus* exchange.

Camelids are identified in late context from extreme southern Colombia, their northernmost prehispanic dispersion. When the Spanish arrived, they appear to have been distributed from here southward through the Andean world as far as northern Chile and Argentina. The uses and roles of camelids in the precolumbian Andes are well documented. As beasts of burden, llamas were important for the terrestrial movement of trade goods and provisions necessary for military expansion. Meat was consumed as food, wool provided fiber, dung was used for fuel, and bones were made into tools. Alpacas were used in the production of fine wool. Both animals served as multipurpose sacrificial offerings; their viscera were extremely important for prognostication, and meat was used in curing. As foremost symbols of wealth and status, camelids were used in noble display and for tribute; they persist today as quintessential features of the Andean world. The vast herds of domesticated camelids that greeted the Spanish on their arrival were rapidly reduced within one century, mainly through the introduction of foreign livestock and disease.

CONCLUSION

For the most part, we are only vaguely aware of when, where, and how animals were domesticated in South America. The temporal and spatial contexts that might inform on processes of domestication are rare in the buried record and tend to be unexplored by archaeologists. Even when studied, the vagaries of preservation frustrate our task. These issues are further exasperated by a lack of relevant osteological criteria for identifying domesticated animals on the basis of primary evidence. Often, the criteria used by biologists to identify domesticated taxa have little application in the preserved material record. The apparent ability of most domestic stock to interbreed freely with their wild relatives frustrates the search for relevant criteria and brings into question the basic validity of our taxonomy and notions of domestication. Identifying ancestry is generally difficult, and the study of contemporary analogs is frequently underdeveloped. This latter problem becomes increasingly urgent, particularly as their numbers diminish due to habitat destruction and overexploitation. As these problems persist, we will continue to rely heavily on indirect evidence, and remain vulnerable to its attendant problems. Nevertheless, it is vital to study the process of animal domestication as well as its repercussions in the evolution of ancient societies in South America.

REFERENCES

- Archetti, Eduardo P., 1997, *Guinea-pigs. Food, Symbol and Conflict of Knowledge in Ecuador*. Berg, Oxford.
Diamond, Jared, 1999, *Guns, Germs, and Steel. The Fates of Human Societies*. W.W. Norton, New York.
Donkin, R. A., 1989, *The Muscovy Duck, Cairina moschata domestica. Origins, Dispersal, and Associated Aspects of the Geography of Domestication*. A.A. Blakema, Rotterdam.

- Franklin, William L., 1982, Biology, ecology, and relationship to man of the South American camelids. In *Mammalian Biology in South America*, edited by M.A. Mares and H.H. Genoways, pp. 457–489. Pymatuning Laboratory of Ecology Special Publication 6. University of Pittsburgh, Linesville.
- Hückinghaus, Folkhart, 1962, Vergleichende untersuchungen die formenmannigfaltigkeit der unterfamilie caviinae Murray 1886. *Zeitschrift für Wissenschaftliche Zoologie* 166:1–98.
- Morales, Edmundo, 1995, *The Guinea Pig. Healing, Food, and Ritual in the Andes*. University of Arizona Press, Tucson.
- Pacheco Torres, Victor R., Alfredo Altamirano Enciso, and Enma Guerra Porras, 1986, *The Osteology of South American Camelids*. Institute of Archaeology, Archaeological Research Tools, Vol. 3. University of California, Los Angeles.
- Stahl, Peter W., 2005, An exploratory osteological study of the Muscovy duck (*Cairina moschata*) (Aves: Anatidae) with archaeological implications for neotropical archaeology. *Journal of Archaeological Science* 32: 915–929.
- Wheeler, Jane C., 1995, Evolution and present situation of the South American camelids. *Biological Journal of the Linnean Society* 54: 271–295.
- Wing, Elizabeth S., 1986, Domestication of Andean mammals. In *High Altitude Tropical Biogeography*, edited by F. Vuilleumier and M. Monasterio, pp. 246–264. Oxford University Press, New York.

High Elevation Foraging Societies

MARK S. ALDENDERFER

INTRODUCTION

Humans have lived in the high Andes for at least 10,000 years, and for most of that time, they were hunting and gathering people. That these adaptations were successful is obvious: Wari, Tiwanaku, and Inca were among the most powerful of the archaic states to arise in the Andes and each had its origin in a high elevation basin. These polities were ultimately based upon the achievements of their distant ancestors, who learned to cope with the rigors of life at high elevation, eventually domesticated plants and animals, and created early forms of social inequality that laid the foundations for persistent forms of leadership and hierarchy. In this chapter I will outline what we know of these early foraging people, and situate them within their ecological, biological, and chronological contexts. The time frame to be considered ranges from approximately 11,000 BC to 1800 BC, and is commonly known as the Archaic or Preceramic Period [Note 1]. Specific questions to be addressed include the following: the timing of and processes by which the high Andes were permanently occupied, the adaptive radiation of foragers after permanent settlement had been achieved, the nature of social formations and their interactions, subsistence change through time and the emergence of different forms of low-level food production, and finally, persistent leadership and the origins of social inequality.

HIGH ELEVATION ECOLOGY AND BIOLOGY

Most authors consider 2,500 masl to be the critical threshold that defines a high elevation environment. Depending on the specific location in the Andes, these elevations may be extremely rugged with pronounced relief, such as the valleys of the western flanks of the Andes, or they may be relatively flat, such as the vast expanse of the altiplano stretching from southern Ecuador well into northern Chile.

High mountain ecology is determined by a complex interaction of climate, elevation, and topography, and from a foraging perspective, this ecology can be characterized

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

by five primary features (Aldenderfer 1998: 2–4): 1) environmental heterogeneity, 2) extremeness, 3) low predictability, 4) low primary productivity, and 5) high instability and fragility. High elevation environments tend to be patchy in both space and time, and consequently, there is significant variability in the location, size, and duration of resource patches. At high elevation, two aspects of extremeness are important: temperature and hypoxia. Even in tropical mountains like the Andes, cold is a constant problem. Humans must cope with cold by cultural adaptations that have significant material and energy costs, and thus divert resources from the subsistence quest. Hypoxia—the diminished availability of oxygen due to reduced barometric pressure at altitude—is a characteristic extreme of high mountain ecologies. Hypoxia affects plant morphology and metabolic processes, which in turn affects primary productivity. Humans, of course, are profoundly affected by hypoxia, and although our species has developed a number of physiological responses to it, it nevertheless remains the environmental extreme least amenable to cultural intervention.

In the Andes, low predictability describes the timing of onset of seasonal precipitation, which in turn has a significant effect on patch productivity and variability over time. The combination of cold, hypoxia, and aridity in the Andes creates a context of low primary productivity. Only the most extreme deserts and polar environments of the planet have lower primary productivity than those at high elevation. Finally, high elevation environments are highly susceptible to wind and rain erosion and extreme coluvial processes that can modify terrain, change stream courses, and destroy resource patches, thus contributing to the overall patchiness of the high elevation landscape. In short, foragers who lived at high elevation in the Andes were faced with a series of environmental challenges that profoundly shaped the course of cultural evolution and process.

The two primary extremes of high elevation environments—hypoxia and cold—act as stressors on human biology, and affect all facets of life, especially reproduction, growth, health status, morbidity, mortality, nutritional status, and work effort. Although the existing indigenous people of the Andes have a variety of *physiological* acclimatizations that ameliorate the negative effects of hypoxia, these developed over time, in response to pressures that must have acted as constraints on the earliest inhabitants of the Andes and their descendants. A consideration of these stressors is necessary because they have had a significant effect on the range of human *cultural* adaptations and historical outcomes of cultural evolution and change at high altitude. Constraints on fertility or exceptionally high neonatal mortality rates, for example, which are known to affect migrants to high elevation (Willey 2004), may well have led to lower growth rates of highland populations, especially in the generations immediately following their founding by lowlanders. And since high elevation peoples tend to have higher basal metabolic rates, they would have required on average more calories than comparable low-elevation peoples. In turn, this may have had important effects on cultural strategies when dealing with problems relating to environmental packing, diet choice under restricted mobility, resource intensification, and both short- and long-term changes in resource availability. Mobility strategies themselves may have been substantially affected due to demands imposed by basic caloric requirements as well as the greater work effort required to traverse rugged mountain topography. Although it is important not to cast these stressors in an overly deterministic role, they did have tangible effects on a variety of aspects of human life at high elevation.

THE ADAPTIVE STRATEGIES OF HIGH ELEVATION FORAGERS

Foragers in high elevation environments thus face three significant problems. First, their basic caloric requirements are higher than those of foragers in more benign settings; this problem is exacerbated by the low productivity, high unpredictability, and heterogeneity of the high mountain environment. Second, they need to balance these demanding subsistence requirements against the necessity of other productive work, such as the making of clothing and shelter used to cope with the combined environmental stressors of extreme and constant cold and hypoxia. Third, they must accomplish these goals under the constraint of relatively high costs of movement and the transport of goods obtained through subsistence labor or exchange.

Although most research on the archaeology of high-elevation Andean foragers has not been model driven, from a theoretical perspective, a central place foraging model is a good first approximation of how high elevation foragers use a landscape (Aldenderfer 1998: 22–25, 276–279). A central place model provides a set of expectations against which an empirically-observed adaptive strategy can be evaluated. Deviations from the model can help to examine other aspects of culture change and historical contingency. Diet choice should take into account the relative energetic value of resource packages obtained, the density and value of resource patches, handling time, and processing time. Although other models of diet choice can be employed, central place foraging emphasizes the costs and benefits of moving across the landscape, which, as I have argued above, is central to understanding high mountain adaptive systems. Mobility should be logistical in form, with relatively few residential moves on an annual or seasonal basis. In tropical mountains such as the Andes in which the seasonal pulse is relatively minor and the highest elevations are often habitable year-round, the number of residential moves will be determined more by resource densities and increases in work effort than by significant changes in resource availability due to seasonal change alone. Finally, risk amelioration will be accomplished by mutual access to territory of neighboring groups as long as mobility costs, population density, and productivity remain relatively low. As population sizes and densities increase, however, exchange with neighbors becomes more likely even though productivity may remain relatively low. This can be attributed to the increased costs of residential mobility of larger groups and the decreased benefits to recipient groups as larger groups utilize their territories. Higher social costs are also likely due to increased conflict or avoidance of it.

THE EMPIRICAL RECORD OF HIGH ELEVATION FORAGING IN THE ANDES

Most of the research concerning the cultural and social adaptations of Andean high elevation foragers has been focused upon the excavation of single sites, many of which have taken on an iconic status, such as Lauricocha (Cardich 1964) or Toquepala (Ravines 1972). Other important sites, such as Guitarrero Cave (Lynch 1980), Pachamachay (Rick 1980), Telarmachay (Lavallée 1987), Puente (MacNeish et al. 1980), Asana (Aldenderfer 1998), Jiskairumoko (Aldenderfer 2004), and Puripica 1 (Santoro and Núñez 1987) have been extensively excavated as well but are also embedded within systematic settlement pattern surveys that provide a better sense of their place in regional settlement systems (Figure 9.1).



Figure 9.1. Location map of Archaic Period sites discussed in this paper. 1: Guitarrero Cave; 2: Lauricocha; 3: Pachamachay and Telarmachay; 4: Puente; 5: Asana; 6: Toquepala; 7: Jiskairumoko; 8: Puripica-1. (Mark Aldenderfer)

Aside from Asana and Puripica 1, these sites are all rock shelters. The sites are found in distinctive ecological and elevational contexts, ranging from about 2,600–2,700 masl in high, arid valleys (Guitarrero Cave, Puente, Toquepala), slightly more humid, but still dry high valleys ranging from 3,400 masl (Asana) to about 3,900 masl (Lauricocha), high puna sites at elevations beyond 4,200 masl (Pachamachay, Telarmachay), the high, wet puna of the circum-Titicaca at about 3,900 masl (Jiskairumoko), and hyperarid valleys of the salt puna at 3,200 masl (Puripica 1). These sites also have an impressive history of habitation; occupations at Guitarrero Cave, Puente, Pachamachay, Telarmachay, and Asana span a time frame that includes the very earliest use of high elevation regions (ca. 11,000-9500 BC) at least to the end of the Archaic (1800 BC), and in most cases, well into the ceramic period. Occupations at Jiskairumoko cover the critical Late Archaic/Terminal Archaic transition into the Early Formative (3200-1800 BC), while at Puripica, the occupation spans the Late Archaic.

MOVING INTO AND LIVING PERMANENTLY IN THE HIGHLANDS

Although Lynch (1990) argued for a trans-altiplanic entry from north to south for the entry of humans into the Andean highlands, consensus has emerged that the earliest inhabitants of the highlands came from the Pacific littoral. Evidence for this is found in three sites: Quebrada Jaguay in southern Arequipa, Asana in the Río Osmore drainage of Moquegua, and Acha-2 in northern Chile. At Quebrada Jaguay, Sandweiss et al. (1998) discovered that the inhabitants of this coastal site most probably made logistical (transhumant, in their terminology) forays into the highlands as early as 11,000-9500 BC and obtained obsidian from the Alca source, which is found at 2,850 masl. Aldenderfer (1998) has observed a similar pattern at Asana. The assemblages that pertain to the earliest occupation of the site (Puruma Phase, 9500-8900 BC) contain small quantities of coastal lithic raw materials, and I attribute their presence to logistical forays by lowlanders making initial explorations of the highlands. In the following Khituña Phase (8900-7600 BC), the assemblages contain only raw materials from high elevation sources, suggesting that the foragers at Asana no longer made long-distance forays to the coast and were now living at high elevations permanently. At Acha-2, a coastal site on the Río Azapa, Muñoz et al. (1993) have observed similar regional-scale settlement patterns at around 8100 BC.

Despite claims for a very early occupation (18,000 BC) at Pikimachay in the Ayacucho Valley by MacNeish et al. (1980), most scholars working in the region agree that the highlands are not likely to have been occupied before 10,000 BC. Prior to this date, the high Andes were humid but significantly colder than at present, which would have depressed primary productivity. Around 10,000 BC in the northern Andes and slightly later in the southern Andes, deglaciation begins and conditions for human occupation improve significantly. Familiar plant and animal species would have begun to move to high elevations, and new and attractive resource patches would have been established quickly. However, a trend toward aridity develops that is exacerbated by shorter and cooler austral summers until 8000 BC. This 2,000-year span, then, saw both opportunities and constraints develop for the human populations beginning to move into the highlands (Aldenderfer 1999b).

The data from Asana suggest that the move to a permanent habitation of the highlands was rapid, perhaps culminating in no more than 500 years once their initial “discovery” had been made. Artifacts likely used by both males and females are present at Khituña phase Asana, suggesting the entire co-resident group is present, including children and older adults. The discovery and use of the Andean highlands was likely to have been driven by short-term decisions designed to minimize effort while simultaneously ensuring sufficient caloric returns for all members of the co-residential group. The resource pull of the rapidly changing highlands, especially as regards faunal resources, would have permitted foragers to achieve these goals as newly emergent highland animal and plant communities became more productive and stable. In the earliest stages, such as the Puruma phase at Asana or the earliest phase of occupation at Pachamachay (Rick 1980), land use patterns of the highlands would have been made on a logistical basis only, with hunting parties of adult males moving into the highlands and returning to lower elevation base camps with their kills. However, it would not have been possible to increase or even maintain for a long period returns under this system because of limitations in transport technology and the inability of members of the foraging party to overcome the effects of hypoxia that limited their work capacity.

A more permanent occupation of the highlands was probably driven by the eventual stabilization of resource patches within them. As more permanent and productive patches emerged on the landscape, their pull would have been sufficient to draw the entire co-residential group to them. Note that this does not imply resource shortfall in lower elevations but instead stresses that these changes would have permitted the entire group to obtain sufficient caloric return while simultaneously reducing work effort for the group's most productive members—its hunters. The rapidity of this process, however, would have been contingent upon how quickly these new patches stabilized as well as the mix of floral and faunal resources present in any locality.

The shift to a smaller scale of residential mobility is consistent with the predictions of the model of high elevation foraging. Although the effects of hypoxia would have led to a reduction in work capacity, this negative was balanced by the growing size and density of resource patches in the highlands. However, the hidden costs of early high elevation life—effects on fetal growth and pregnancy—would not have been noticed immediately. Women would have experienced more fetal loss, and successful pregnancies would have been characterized by infants with lower birth weights when compared to lowlanders, which would have led to higher rates of neonatal mortality. And although birth at high elevation confers at least partial biological acclimatization to the rigors of high elevation life, recent data from Ladakh in northwestern India suggest that it may take at least 60 generations for pregnancy-related acclimatization to become widespread in the population (Wiley 2004). The effect of this would have been relatively slow rates of population growth across the highlands, an observation supported in all instances where we have good regional survey and reliable population estimates, such as on the Junín puna (Rick 1980), the Río Moquegua drainage (Aldenderfer 1998), and the Río Ilave drainage in the circum-Titicaca region (Aldenderfer 2002; Klink 2005).

ADAPTIVE RADIATION

Although population growth rates may have been low initially, populations nevertheless did grow over time, and high-elevation foragers began to move into new niches and use ones occupied earlier in different ways. In the Andes, this process can be seen primarily through the lens of the relative degree of mobility of these foragers. Obviously, mobility and land-use patterns were tempered by local resource configurations as well as regional-scale climatic changes. The middle Holocene (6400-3800 BC) was characterized by a trend of increasing, sometimes severe, aridity. In the salt puna of northern Chile and northwestern Argentina, for example, Núñez (1983) has long argued for a so-called “*silencio arqueológico*,” wherein much of the Andean highlands were abandoned for much of the period. Although more recent research has refined his concept both regionally and temporally (Aldenderfer 1988; Núñez, Grosjean, and Cartajena 2002), it is clear that the foragers of that region were tethered to water and moved frequently between resource patches as they were exhausted. In the circum-Titicaca region during this period, precipitation is estimated to have been only 40% of that seen today, and Lake Titicaca fell from between 50 to 100 m below its modern level. Its waters would have approached one-half the level of salinity of sea water. However, this was interrupted by sharp, but brief, rises in lake level (Cross et al. 2001). This suggests that resource predictability and certainly productivity would have been highly variable in the basin. In contrast, the Junín puna, while certainly drier than in modern times, saw precipitation remain

more constant, and therefore, primary productivity would have been more consistent on an annual basis (Seltzer et al. 2000).

This variability is reflected in clear differences in settlement patterns between the two regions. In the Titicaca basin, in both the Río Ilave and Río Huenque drainages, residential mobility remained high from 7000-3200 BC. Large numbers of sites are found in redundant locations on the landscape, but none show evidence of long-term residential occupations (Aldenderfer 2002; Klink 2005). A similar level of mobility is seen also in the Río Moquegua drainage. Although these foragers did not descend into lower elevations, they did range into the margins of the puna as well as move to different residential bases in other nearby drainages (Aldenderfer 1998). More moderate levels of residential mobility are seen in the Río Santa, where foragers practiced what Lynch (1980) has described as a form of transhumance. The highest elevations of the valley were used during the austral winter, while lower elevations were used in the summer. In contrast, the data from Pachamachay show a remarkable pattern of sedentary occupation of the site from 8100-5900 BC (Rick 1980). Here, foragers focused their subsistence attention almost exclusively upon the hunting of vicuña, a territorial camelid that was both predictable in numbers and location. While these peoples may have made logistical forays to other sites, these were brief.

That mobile settlement patterns were maintained for much of the middle Holocene can be attributed to overall low resource densities as well as low regional-scale population densities. Even at Pachamachay, where the foragers were sedentary, there is no evidence for regional packing on the Junín puna, and indeed, the data from Telarmachay, only 35 km away, show that foragers apparently moved from the high puna to the upper reaches of the surrounding valleys on a seasonal basis (Lavallée 1987).

SOCIAL FORMATIONS AND INTERACTIONS

Social relationships are notoriously difficult to infer in the archaeological record, and this task is made especially difficult in the Andean highlands, where relatively few sites have been excavated and clear material indicators of social dynamics are scant. The most reliable indicators of social life are very indirect measures, and include projectile point styles, lithic raw materials, and so-called “exotics,” or artifacts of non-local origin. In some cases, the scale of residential mobility can be used to infer “boundaries” that might have existed between foraging groups.

Frequencies of projectile point styles show varying patterns across the Andes. Many authors believe that point style at least in part reflects some aspect of ethnicity, identity, or more broadly, a coherent social formation. On the Junín puna, for example, Rick (1980: 312–16) argues that distinct point styles were created by different local resident groups, or bands. In the earliest occupation of Pachamachay (10,000-7000 BC), only three styles were present but in the following phase (7000-5000 BC), sixteen styles were found. This suggests to Rick that numerous and coexisting groups used the shelter at different times over a 2,000-year period. A similar pattern of style variation can be found in the Río Ilave drainage. Here, Klink and Aldenderfer (2005) show that for the period 9000-7000 BC, only two styles can be defined for this period, suggesting relatively few social groups and low population densities. From 7000-5000 BC, six style groups are defined, suggesting a pattern of population growth and social differentiation.

Another trend in projectile point style is that through time, they tend to become more local, and have a limited spatial distribution. Early styles in both the Junín puna and the

Río Ilave are very similar to one another, but through time, they take on locally distinct characters. Their value as chronological markers becomes far more limited in scope. This implies a significant reduction in residential mobility, or alternatively, the nature of long-distance contacts. Stylistic similarity over large spaces implies the maintenance of social ties at very low population densities, most probably for information sharing in a new environment and for the maintenance of a mate pool. As styles become more local, this implies that regional population density is increasing, and that these groups are able to find mates at a reduced regional scale.

Another form of social interaction is trade and exchange. Much has been made in the Andes about the evolution of different forms of complementarity and the kinds of social relationships implied by them. Vertical complementarity as defined by Murra (1975) and others describes varied social relationships between highlanders and lowlanders, and is seen by many as a risk buffering adaptation based on the altitudinal distribution of habitats in the Andes (Salomon 1985). In the Río Moquegua, Aldenderfer (1998: 302–303) has argued that “Archaic Period complementarity” was primarily horizontal, and contained within high elevations. Relationships with lowlanders were marked by exchanges of utilitarian artifacts until late in prehistory, when more formal exchange relationships of subsistence items developed, residential mobility decreased, and social boundaries were defined. Lynch (1971) sees a similar pattern in the Callejón de Huaylas, but with a greater scale of residential mobility. MacNeish et al. (1980) see the exchange of subsistence resources between lowlanders and highlanders in the Ayacucho Valley during the Cachi phase (4000–2000 BC).

The exchange of non-utilitarian artifacts, especially obsidian, is of importance in many regions. These materials are likely to be indicators of social relationships, or may have been symbols of status and achievement by those who possessed them. Although obsidian from the Chivay source is found at Asana as early as the Khituña phase (8800 BC), it is present only in very small quantities, suggesting it was obtained via down-the-line trading instead of direct procurement (Aldenderfer 1999a). More significant quantities of obsidian from the Quispisisa source are found in Ayacucho in Cachi times, while in the southern Titicaca basin at Jiskairumoko, obsidian frequencies increase dramatically after 2800 BC, which marks the onset of the Terminal Archaic. Appearing at 2000 BC are cold-hammered gold beads from an as yet unidentified source found with an adult-and-child secondary burial (Aldenderfer 2004: 24; Figure 9.2). Finally, a fragment of *Strombus* shell appears at Uchumachay between 4800–4500 BC (Kaulicke 1999: 320–22).

THE SUBSISTENCE QUEST AND LOW-LEVEL FOOD PRODUCTION

Resource procurement throughout the Archaic was heavily slanted toward hunting, particularly the camelids, given the limited range of edible plants found at high elevation, but as always, local resource configurations varied considerably. However, as either logistical or residential mobility brought foraging groups to lower elevations, the use of plants within those subsistence systems increased. The most extreme reliance upon hunting is on the Junín puna, where Rick (1980) shows that vicuña dominated the subsistence quest, and Rick has argued persuasively these formed the basis of an optimal diet. Although gathered plants, most importantly *Chenopodium* and *Opuntia* were present at Pachamachay, their quantities were very small, and thus did not contribute substantially to the diet. A similar extreme reliance upon guanaco hunting is seen at Puripica 1, where plant remains are very



Figure 9.2. Necklace composed of cold-hammered gold beads and circular lapis beads found in an adult-child secondary burial from Jiskairumoko, ca. 2000 BC. (Mark Aldenderfer)

scarce. In the high sierra of the Rio Moquegua, the evidence from Asana shows that hunters were also following an optimal diet, where guanaco, then the taruca (*Hippocamelus antisensis*), were the most highly ranked animal resources. Women apparently gathered wild chenopods at nearby patches.

In contrast, the subsistence systems in the Callejón de Huaylas and Ayacucho Valley, because they did extend into the lower reaches of the high elevation zone, were far more focused upon plants and smaller mammals. In both instances, arguments have been made for relatively early plant horticulture that led to domestication, a process best described as low-level food production (Smith 2001). At Guitarrero Cave, Lynch (1980) describes the

diet of the Complex II (ca. 9500-6400 BC) foragers as a mix of wild plants and possible cultivars of tubers (*Ullucus* and *Oxalis*), beans (*Phaseolus vulgaris*), and squash (*Curcubita*). This very early appearance of cultivars did not stimulate significant population growth. MacNeish et al. (1980) argue for a similar scenario in the Ayacucho Valley; cultivars of gourd, squash, and chenopods were introduced as early as 6600 BC in the Piki phase, although they were of little importance to the diet. Tubers and maize were added to the mix by the end of the Chihua phase (5000-4000 BC), but it is not until the Cachi phase (4000-2200 BC) that a more substantial reliance on plants is observed. A form of vertical complementarity characterizes this adaptation, when in the wet season, groups descended to lower elevations to grow tubers and herd domesticated camelids, while in the dry season, they pastured animals on the high puna and hunted. Population grew substantially during this phase, and at least some of these groups were essentially sedentary.

The question of camelid domestication continues to vex archaeologists working in the Andes. Herding is a form of low-level food production, but does not come to dominate subsistence practice until relatively late in the Archaic. Despite close proximity and long familiarity, the foragers at Pachamachay and nearby Panaulauca did not herd camelids until after 1600 BC (Rick 1980; Rick and Moore 1999: 271–72). This stands in stark contrast to Telarmachay, where Wheeler (1999) argues that the domestication of the vicuña was complete by 4200 BC. Given the proximity of these sites, it is difficult to easily reconcile these scenarios. Herding is believed to have evolved in at least two other areas of the Andes during the Archaic: in the Río Moquegua drainage, where at Awati phase Asana (3000-1500 BC) clear evidence of corrals and animal pens are present, and at Puripica 1, where Hesse (1982) argues that guanaco were herded between 3500-2500 BC. In none of these examples, however, do human populations grow rapidly after herding is said to be in place. Further, few models of how the domestication process was initiated have been offered aside from risk buffering. But as Aldenderfer (2006) has argued, it is difficult to see how herding could emerge in the short run as a risk buffering adaptation given the slow growth rates of camelid herds. Instead, a model that examines differences in men's and women's provisioning strategies within a costly signaling framework shows how animal husbandry could have been adopted not to buffer risk, but instead to augment and extend men's status competition as long as women were able to feed their families. The model helps to explain changes in women's labor allocation, status, and roles across the transition from a foraging to a herding subsistence strategy, but remains to be tested in other regions.

PERSISTENT LEADERSHIP AND THE ORIGINS OF SOCIAL INEQUALITY

It is well known that in contrast to the Pacific coast of Peru, very little evidence of social inequality leading to persistent leadership can be found in the highlands during the Archaic (Aldenderfer 2004). This does not mean, however, that foundations of leadership and inequality are nonexistent. Leadership strategies only become apparent after 4800 BC and these reflect a mixture of aggrandizing, ritual practice, and the use of threat of conflict or warfare. At Jiskairumoko, the presence of gold beads in a mixed adult-and-child secondary burial is interpreted as evidence for aggrandizing given the high costs of obtaining a truly exotic resource (Aldenderfer 2004: 24). At Qhuna phase Asana (3800-3000 BC), changes in ritual practice are reflected by the transformation of an open, visible ceremonial structure to one surrounded by walls, and the construction of interior features is seen as

an attempt to capture ritual practice and leadership positions (Aldenderfer 2004: 22–23). Finally, most of the obsidian found in the Late Archaic in a number of regions, most notably in the circum-Titicaca and the Ayacucho Valley, was used to fashion small arrow points (Aldenderfer 2004: 29). This costly good was most likely used in display and threat, which would have increased the status and prestige of those wielding the weapons. A strategy to leadership conspicuously absent is feasting.

None of these strategies led to the establishment of persistent leadership within the trajectories of their discovery. One of the reasons for this failure, and for the absence of feasting, is that until very late in the Archaic, few of these regions were characterized by a context of resource abundance. The subsistence quest certainly provided the basis for population growth and the diversion of some resources to aggrandizing behaviors, but the level of that production was insufficient to provide a long-term basis for leadership and inequality. The evidence in the Ayacucho Valley is suggestive of a transition to some ritually-based form of inequality at the end of the Cachi Phase (2200 BC), but unfortunately, the data are not sufficient to verify this assertion. In fact, real inequality in the highlands does not appear until agropastoral adaptations are firmly established.

CONCLUSION

Substantial progress has been made over the past fifty years in our understanding of the nature and variability of the high elevation foraging adaptations in the Andes. Although these foragers adapted to distinctive niches, it seems clear that a model of central place foraging is a good place to start when considering how these foragers adjusted to the constraints and opportunities of life at high elevation. Such models are especially important in situations, such as in the highlands, when mobility costs are high and resource distributions sparse and patchy. A consideration of the effects of hypoxia on pregnancy and population growth also helps to explain why highland people never achieved high population densities until well after the end of the Archaic Period. Successful acclimatization to the effects of hypoxia, plus the establishment of agropastoral communities, were the catalysts for significant growth in population. These factors also explain why dramatic differences in social inequality did not arise during the Archaic in the highlands. However, it is clear that these foragers experimented with the strategies that ultimately led to inequality—prestige and status competition, the capture of ritual, and the manipulation of conflict—and that are so dramatically expressed later in prehistory.

NOTE

1. In the North American literature, these terms are interchangeable. In South America, however, Archaic tends to be used by Argentine and Chilean archaeologists, while Preceramic is more commonly seen in Peru and Bolivia.

REFERENCES

- Aldenderfer, Mark S., 1988, Middle Archaic Period domestic architecture from southern Peru. *Science* 241: 1828–1830.
- , 1998, *Montane Foragers: Asana and the South-Central Andean Archaic*. University of Iowa Press, Iowa City.
- , 1999a, Cronología y conexiones: evidencias precerámicas de Asana. In *El Periodo Arcaico en el Perú: Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp. 375–391. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.

- _____, 1999b, The Pleistocene/Holocene transition in Peru and its effects upon human use of the landscape. *Quaternary International* 53/54: 11–19.
- _____, 2002, Explaining changes in settlement dynamics across transformations of modes of production: from hunting to herding in the south-central Andes. In *Beyond Foraging and Collecting: Evolutionary Change in Hunter-Gatherer Settlement Systems*, edited by Ben Fitzhugh and Junko Habu, pp. 387–412. Kluwer Academic Publishers, New York.
- _____, 2004, Preludes to power in the highland Late Preceramic Period. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin Vaughn, Dennis Ogburn, and Christina Conlee, pp. 13–35. Archaeological Papers of the American Anthropological Association, Number 14.
- _____, 2006, Costly signaling, the sexual division of labor, and plant and animal domestication in the Andean highlands. In *Human Behavioral Ecology and the Origins of Food Production*, edited by Douglas Kennett and Bruce Winterhalder, pp. 167–196. University of California Press, Berkeley.
- Cardich, Augusto, 1964, *Lauricocha: Fundamentos para una Prehistoria de los Andes Centrales*. Studia Prae-historica III, Buenos Aires.
- Cross, Scott, Paul Baker, Geoffrey Seltzer, Sherilyn Fritz, and Robert Dunbar, 2001, Late Quaternary climate and hydrology of tropical South America inferred from an isotopic and chemical model of Lake Titicaca, Bolivia and Peru. *Quaternary Research* 56: 1–9.
- Hesse, Brian, 1982, Animal domestication and oscillating climates. *Journal of Ethnobiology* 2: 1–15.
- Kaulicke, Peter, 1999, Contribuciones hacia la cronología del Periodo Arcaico en las punas de Junín. In *El Periodo Arcaico en el Perú: Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp. 307–324. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.
- Klink, Cynthia J., 2005, Archaic Period research in the Río Huenque Valley, Peru. In *Advances in Titicaca Basin Archaeology 1*, edited by Charles Stanish, Amanda Cohen, and Mark Aldenderfer, pp. 13–24. Cotsen Institute of Archaeology, University of California, Los Angeles.
- _____, and Mark S. Aldenderfer, 2005, A projectile point chronology for the south-central Andean highlands. In *Advances in Titicaca Basin Archaeology*, Vol. 1, edited by Charles Stanish, Amanda Cohen, and Mark S. Aldenderfer, pp. 25–54. Cotsen Institute of Archaeology, University of California, Los Angeles.
- Lavallée, Danielle, 1987, *Telarmachay: Chasseurs et Pasteurs Préhistoriques de Andes I*. Institut Français d'Études Andines, Paris.
- Lynch, Thomas F., 1971, Prehistoric transhumance in the Callejon de Huaylas, Peru. *American Antiquity* 36: 139–148.
- _____, 1980, *Guitarrero Cave: Early Man in the Andes*. Academic Press, New York.
- _____, 1990, Glacial-age man in South America? A critical review. *American Antiquity* 55 (1): 12–36.
- MacNeish, Richard S., Angel Garica, Luis Lumbreras, Robert K. Viera, and Antoinette Nelken-Turner, 1980, *Prehistory of the Ayacucho Basin, Peru*, Vol. 1. University of Michigan Press, Ann Arbor.
- Muñoz, Ivan, Bernardo Arriaza Torres and Arthur Aufderheide, 1993, *Acha-2 y los Orígenes del Poblamiento Humano en Arica*. Ediciones Universidad de Tarapacá, Arica, Chile.
- Murra, John V., 1975, El control vertical de un máximo de pisos ecológicos en la economía de las sociedades andinas. In *Formaciones Económicas y Políticas del Mundo Andino*, by John V. Murra, pp. 59–115. Instituto de Estudios Peruanos, Lima.
- Núñez, Lautaro, 1983, Paleoindian and Archaic cultural periods in the arid and semiarid regions of northern Chile. In *Advances in World Archaeology*, Vol. 2, edited by Fred Wendorf and Angela Close, pp. 161–203. Academic Press, New York.
- _____, Martin Grosjean, and Isabel Cartajena, 2002, Human occupations and climate change in the Puna de Atacama, Chile. *Science* 298: 821–824.
- Ravines, Rogger, 1972, Secuencia y cambios en artefactos líticos del sur del Perú. *Revista del Museo Nacional* 38: 133–184. Lima.
- Rick, John, 1980, *Prehistoric Hunters of the High Andes*. Academic Press, New York.
- _____, and Katherine Moore, 1999, El Precerámico de las punas de Junín: el punto de vista desde Pan-aulaica. In *El Periodo Arcaico en el Perú: Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp. 263–296. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.
- Salomon, Frank, 1985, The dynamic potential of the complementarity concept. In *Andean Ecology and Civilization*, edited by Shozo Masuda, Izumi Shimada, and Craig Morris, pp. 511–531. University of Tokyo Press, Tokyo.
- Sandweiss, Daniel H., Heather McInnis, Richard L. Burger, Asunción Cano, Bernardino Ojeda, Rolando Paredes, María Carmen del Sandweiss, and Michael D. Glascock, 1998, Quebrada Jaguay: Early South American maritime adaptations. *Science* 281: 1830–1832.

- Santoro, Calogero and Lautaro Nuñez, 1987, Hunters of the dry puna and salt puna in northern Chile. *Andean Past* 1: 57–109.
- Seltzer, Geoffrey, D. Rodbell, and T. Burns, 2000, Isotopic evidence for late Quaternary climate change in tropical South America. *Geology* 28: 25–38.
- Smith, Bruce D., 2001, Low-level food production. *Journal of Archaeological Research* 9 (1): 1–43.
- Wheeler, Jane, 1999, Patrones prehistóricos de utilización de los camelidos sudamericanos. In *El Periodo Arcaico en el Perú: Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp. 297–305. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.
- Wiley, Andrea, 2004, *An Ecology of High-Altitude Infancy*. Cambridge University Press, Cambridge.

Early Fishing Societies in Western South America

DANIEL H. SANDWEISS

INTRODUCTION

Over the past decade, archaeologists have redefined the age and complexity of early fishing societies of the Pacific coast of South America, resulting in a paradigm shift for the entire New World driven primarily by Andean research. Like most breakthroughs, the new paradigm builds on deep roots in Andean archaeology, stretching back at least to the pioneering research of Junius Bird in northern Chile and northern Peru in the 1930s and 1940s, and continuing from the 1950s to the 1990s with the work of Frédéric Engel, Edward Lanning, Michael Moseley, James B. Richardson III, Agustín Llagostera, Robert Benfer, and others (see details below). Some, in particular Richardson and Llagostera, astutely recognized the true antiquity of Andean maritime adaptations from scattered and inconclusive data, and Richardson (1981) figured out why the data were so scant (particular sectors of ancient shorelines were inundated as sea level rose with deglaciation from 21,000-5800 cal yr BP; see Chapter 6 in this volume). His work has informed all subsequent research on this issue.

The simultaneous publication in 1998 of two Terminal Pleistocene, Paleoindian-age fishing sites in southern Peru demonstrated conclusively that fishing is very nearly as old in the New World as the presence of humans (Sandweiss et al. 1998; Keefer et al. 1998). Why is it important whether or not some of the first settlers of the New World knew how to fish? In a seminal review of the anthropology of fishing, James Acheson (1981: 277) wrote, “fishing poses some very unusual constraints and problems. Marine adaptations are one of the most extreme achieved by man”. Among other factors that together contribute to the unique nature of such adaptations, Acheson noted human beings’ lack of physiological adaptation to aquatic environments, physical and social risk, non-transferability of most terrestrial hunting technology, high degree of faunal diversity, periodic and unpredictable stock failure, low visibility of prey, and the problems of common property resources

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

(Acheson 1981: 276–277). Given these distinct biological, technological, and social correlates of fishing, as archaeologists working in coastal zones, we should be concerned with tracking and analyzing maritime adaptations through time (see for instance Erlandson 2001). Nowhere is this more true than the coast of Peru and adjacent countries in western South America, one of the world's most productive marine ecosystems.

In this chapter, I briefly review the history of study and synthesize the current state of knowledge concerning early maritime adaptations in this region, and point to some implications of these new data. I limit my discussion to southern Ecuador, Peru, and northern Chile as this is where the majority of early coastal sites have been excavated. Sites of similar antiquity are as yet unknown elsewhere in the New World, with the exception of Daisy Cave on one of the Channel Islands of southern California (e.g., Erlandson et al. 1996). With the past decade of research in the Andes, we can now confirm the Richardson hypothesis about bias in the archaeological record of early fishing and thus help guide the search for more early maritime sites throughout the western Americas.

HISTORICAL REVIEW OF EARLY FISHING IN PERU AND NORTHERN CHILE

Charles Barrington Brown (1926) was the first to report preceramic sites on the coast of South America. However, it was not until the 1930s and 40s that American Museum of Natural History archaeologist Junius Bird really put the coastal preceramic on the map, with excavations in northern Chile (Bird 1943) and then in northern Peru at the Late Prece-ramic Peruvian site of Huaca Prieta (Bird et al. 1985; see Figure 10.1 for the location of this and other sites mentioned in this chapter). Although in both areas Bird found evidence for intensive fishing, most attention focused on his characterization of Huaca Prieta's inhabitants as America's first farmers (Bird 1948).

During the 1950s, Frédéric Engel began research on preceramic coastal archaeology in Peru. He, too, found evidence of marine resource utilization but chose to focus on other issues, in particular the use of the lomas (fog meadow) resource zone. Engel was the first to acquire radiocarbon dates from multiple coastal sites (e.g., Engel 1957, 1980).

Research into preceramic maritime adaptations began in earnest in the 1960s. On the central coast of Peru, at and around Ancón, Edward Lanning studied a series of preceramic sites and produced the first detailed sequence for the coastal preceramic epoch (Lanning 1963, 1967). Maritime adaptations played a role in his reconstruction of events: he found no significant use of marine resources before 5800 cal yr BP and an increasing importance of seafood thereafter. In his landmark text, *Peru Before the Incas*, Lanning (1967) used this sequence as a model for all of coastal Peru. Unfortunately, as Richardson (1981) pointed out fourteen years later, Lanning failed to take into account the possible effects of post-glacial eustatic sea level rise on the preservation of archaeological sites. This phenomenon had been recognized long before the 1960s, and by that time the approximate chronology and magnitude were understood (for the current standard sea level curve see Fairbanks 1989). Because the continental shelf is relatively wide and shallow at Ancón, the shoreline there lay many kilometers to the west when people first arrived in the region about 13,000 cal yr BP. Consequently, most early maritime sites probably lay to the west of the modern shoreline, on the now-drowned coastal plain. The ocean only reached its modern position at about 6000 cal yr BP—the same time that Lanning first found evidence for marine resource use.



Figure 10.1. Map showing location of sites and places mentioned in the text. (Daniel Sandweiss)

Sites stand out on the desert coast of Peru and northern Chile. If Lanning had not found early maritime sites, then it was easy to think that none existed. Other archaeologists naturally followed Lanning's lead. Working in the same region in the late 1960s, Michael Moseley (1968, 1975) excavated Late Preceramic (ca. 5700-4000 cal yr BP) sites near Ancón. Confirming Lanning's observation that animal remains were predominately maritime, he placed these data in the broader context of the central coast Late Preceramic archaeological record. Noting that the first large coastal temples dated to this time and region, Moseley proposed the controversial "Maritime Foundations of Andean Civilization"

hypothesis—that seafood, not just agriculture, underwrote the first formation of Andean civilization.

While Moseley was digging on the central coast, Richardson (1969, 1973, 1978) was working on the far northern coast of Peru, near the oil port of Talara, where the continental shelf is extraordinarily narrow. In the late 1960s and early 1970s, he found Middle and even Early Preceramic Period sites that contained abundant evidence of marine resource use, especially shells of edible mollusks. One of these shells, from the Amotape campsites, produced a radiocarbon date of about 12,200 cal yr BP (Richardson 1978). During the Late Preceramic Period and more recent epochs, the Talara region was a relative backwater compared to the central coast of Peru; in the 1970s there was no reason to believe that this was not true in the Early Preceramic Period. Why, then, would the earliest Talareños take advantage of seafood while the innovative inhabitants of the central coast ignored this easy and abundant source of nutrition? It made no sense.

In 1981, Richardson published his answer to this question, as noted above: central coast-dwellers of the Early and Middle Preceramic Periods probably *were* using marine resources, but most sites containing evidence for this practice lay on distant shorelines now drowned by rising sea level. At issue is the preservation of whole sites and entire landscapes: where the continental shelf is narrow, as at Talara, the 60 m of sea level rise between 13,000 and 6000 cal yr BP (Early and Middle Preceramic Periods) caused relatively little horizontal displacement of the shoreline, while in areas of wider shelf such as the Ancón-Chillón area, the shoreline would have moved significant distances over this period and inundated many more sites.

As a test of this hypothesis, Richardson suggested that early maritime sites should be located on those parts of the coast—like Talara—where the shelf is narrow and the shoreline moved only a short horizontal distance as sea level rose. Appropriate areas of narrow shelf included the far northern Peruvian coast near Talara and the Peruvian coast from the Paracas Peninsula south through northern Chile. In the 1970s, Chilean archaeologist Agustín Llagostera (1977, 1979) excavated a shell midden site at La Chimba 13 (formerly called Quebrada de las Conchas) in northern Chile. His two original dates were almost 11,000 calendar years old. This site now fit into the emerging picture.

In 1983, Richardson and I began excavations at the large shell midden known as the Ring Site (Figure 10.2), in southern Peru not far north of the Chilean border (Sandweiss et al. 1989). There, we found a subsistence system in which all kinds of marine animals were exploited: fish, shellfish, sea urchins, sea mammals, and sea birds. There were almost no bones of land animals. The Ring Site people probably used plant foods, but no evidence survived. A shell from the bottom of the Ring Site yielded a date of 11,400 cal BP, but all the other dated materials, both shell and charcoal, had ages between about 9100 and 5850 calendar years ago.

Meanwhile, in southern Ecuador, a few hundred kilometers north of Talara, excavations by North American archaeologist Karen Stothert at the Las Vegas site had shown a mixed economy that included marine resources. Dates ranged from ca. 11,400–7500 cal BP; a pre-Vegas occupation dated between about 13,000 and 11,400 cal BP, but the scanty remains did not show what sort of food these people ate (Stothert 1985, 1988, 1992). More recently, analysis of microscopic plant remains (phytoliths) has shown that the early Las Vegas people cultivated cucurbits (squashes) (Piperno and Stothert 2003). At the same time, Claude Chauchat's work at sites of the Paiján culture of northern Peru showed people with an inland adaptation who were in contact with the shoreline as far back as 12,250 years ago (Chauchat et al. 1992). The Paiján sites are on the inland side of the modern coastal plain, and the shoreline 12,000 years ago was many kilometers further west. The Paiján people must have had stations near the ocean to exploit marine

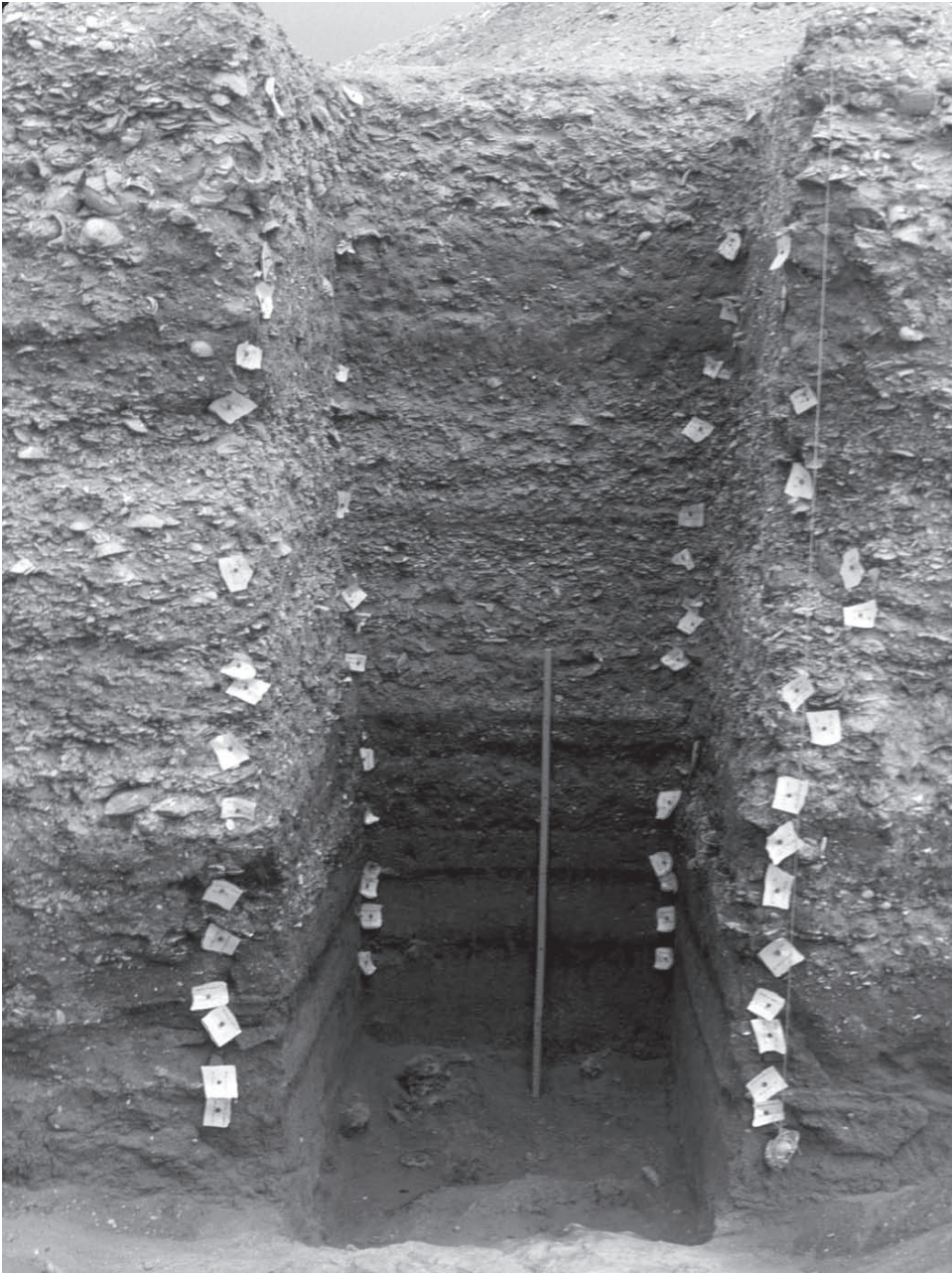


Figure 10.2. Profile of Pit C at the Ring Site, an Early to Middle Holocene shell midden near Ilo, Peru. (Daniel Sandweiss)

resources, but because of rising sea level the only evidence we have are a few fish bones and shells carried to their interior camps (Wing 1992; see also Dillehay et al. 2003). We cannot know whether there were separate coastal and interior groups who traded products or whether Paiján groups moved back and forth between beachfront and foothills.

By the end of the 1980s, archaeologists had excavated numerous Middle Preceramic maritime sites dating between about 9000 and 5000 years ago along the Peruvian and Chilean coasts. No longer was there any doubt that South American maritime adaptations were far earlier than Lanning and others had believed in the 1960s and 1970s. Still, none of the well-dated maritime occupations approached the time of the first settlement of South America. They had nothing to say about migration routes and could be classified as a peripheral development by those who saw the transition from terrestrial hunting and gathering to farming as the crucial transformation of Andean civilization. The early dates from Amotape and the Ring Site could be dismissed—shell is a difficult material to date—and neither date was supported by similar results from the same site (e.g., Lynch 1991). Even the dates then available from La Chimba 13 in northern Chile post-dated 11,400 cal yr BP and therefore are later than the initial settlement of the coast.

Below, I review the best-dated and studied early maritime sites from Peru and northern Chile. As will be apparent, there is no longer any question about the antiquity of aquatic adaptations in the region, but we are just beginning to understand the nature of this early coastal settlement and much remains to be done.

QUEBRADA JAGUAY

In 1970, as part of his program to explore the preceramic epoch of the Peruvian coast, Engel (1981) recorded a site on the banks of an ephemeral stream near Camaná in southern Peru. As part of this work, Engel made a sketch map of the site and dated charcoal from one of his three test pits at the site, Quebrada Jaguay 280 (QJ-280). In the early 1990s, Peruvian archaeologist and former Engel assistant Bernardino Ojeda called my attention to this date (ca. 11,800 cal yr BP) and recalled that the site contained abundant remains of shells and fish, a fact that we confirmed from Engel's open pits during a brief site visit in 1992 (Figure 10.3). In 1996, I began excavations at Quebrada Jaguay (Sandweiss et al. 1998, 1999) and continued with a second season in 1999. I also carried out a full cover survey in the area between Quebrada La Chira and the Camaná River, from the shoreline inland to about 750 masl. Working with a team of Peruvian, Canadian, and U.S. archaeologists and analysts, we determined that Quebrada Jaguay was a fishing site occupied between about 13,000 and 8300 cal yr BP, based on a suite of 41 charcoal dates (Sandweiss et al. 1998, in prep.). Distinctive assemblages and an additional 20 dates from sites recorded and tested during survey established the following local chronology (Sandweiss et al. 1998, 1999, in prep.):

Jaguay Phase, ca. 13,000-11,400 cal BP. Early Preceramic Period.

Machas Phase, ca. 10,600-8000 cal yr BP. Early Middle Preceramic Period.

Apparent hiatus, equivalent in time to the "archaeological silence" postulated for the Atacama region of northern Chile (Grosjean et al. 1997; Núñez et al. 2002).

Manos Phase, ca. 4000 cal yr BP. Late Preceramic Period.

Basal dates from the Jaguay Phase, found only at QJ-280, are as early as any well-established dates from anywhere on the Peruvian coast and may well represent the first settlement of the region. This phase clearly dates to the Terminal Pleistocene Epoch and is equivalent in age to the North America Paleoindian Period. During the Jaguay Phase, QJ-280 was a domestic center for fishermen who targeted drum fish (the corvina or sea bass family) and wedge clams (Sandweiss et al. 1998; McInnis 1999). These people built houses, apparently rectangular (Figure 10.4), and modified them frequently, perhaps when



Figure 10.3. Frédéric Engel's 1970 Pit A at Quebrada Jaguay (site QJ-280), seen in 1992. (Daniel Sandweiss)

returning after prolonged absences. Within the houses were hearths, food remains, and abundant lithic debitage but almost no finished tools. The vast majority of the lithics were local (Tanner 2001), but the inhabitants also brought obsidian from the highland Alca source some 165 km away in the adjacent highlands (Sandweiss et al. 1998; Burger et al. 1998). The Jaguay fishermen employed reeds, probably for building, used medicinal plants such as horsetail, and ate prickly pears (Sandweiss et al. 1998, 1999; A. Cano, personal communication; D. Piperno, personal communication). They may well have consumed other plants, but no evidence has survived. In short, the primary site function was domestic—shelter, food preparation and consumption, and tool making for use elsewhere.

Despite running basal dates on 17 of the more than 60 sites discovered during survey of the region, only QJ-280 falls in the Jaguay Phase. All the other sites are Machas or Manos Phase. Combined with the presence of highland obsidian and prickly pear cactus seeds (not likely to grow wild below 1,000 masl), the most parsimonious explanation for this pattern is that QJ-280 was a coastal base camp in a seasonal round that included other areas—certainly the adjacent highlands and possibly also the floor of the nearby Camaná and Ocoña rivers. Further work in the highlands near the Alca source may uncover contemporary sites that will help us assess this idea.

During the subsequent Machas Phase, sites spread across the landscape near Quebrada Jaguay, while exotic materials (obsidian, prickly pear) drop out and poorer grade lithics (sandstone from the quebrada bed adjacent to the site) become more frequent in the assemblage. These changes suggest that at the start of the Holocene (after 11,400 cal yr BP), the local population had settled in to the coastal landscape and no longer ranged into the highlands.



Figure 10.4. Postholes from a Terminal Pleistocene house at Quebrada Jaguay (site QJ-280), Sector II. 1999 excavation. Grid is 1 m. (Daniel Sandweiss)

QUEBRADA TACAHUAY

Some 230 km south of Quebrada Jaguay, Keefer et al. (1998) found Terminal Pleistocene archaeological deposits exposed in profiles along the Quebrada Tacahuay. Charcoal dates range from ~12,000 to 12,900 cal yr BP (deFrance et al. 2001; deFrance and Umire A. 2004). The excavations have produced a substantial vertebrate faunal assemblage emphasizing seabirds, with some fish and mollusks. The marine species are typical of the Peru Current today. No information is yet available on plant use. A substantial flood deposit overlies and seals the Terminal Pleistocene archaeological deposits, suggesting ENSO-like conditions shortly before 11,000 cal yr BP. Shortly after that event a reoccupation dated to the Pleistocene/Holocene transition includes birds, marine and terrestrial animals, reptiles, fish, and mollusks (deFrance and Umire A. 2004). In the Terminal Pleistocene/Paleoindian-age deposits, lithics are local, terrestrial fauna is absent, and although hearths are present, there is no evidence for structures like those at Quebrada Jaguay (deFrance et al. 2001; deFrance and Umire A. 2004). The excavators believe that the site was a “specialized coastal extraction station” (a logistical field camp, *sensu* Binford 1980) for processing seabirds.

COMPLEJO HUENTELAUQUEN

Llagostera’s work at La Chimba 13 (also called Quebrada de las Conchas) offered one of the first examples of an Early Preceramic maritime site in the Andes, though the two dates available in his 1977 and 1979 publications were Early Holocene rather than Terminal Pleistocene and therefore slightly later than dates then available for highland sites. More

recently, Lagostera and colleagues (2000) have acquired additional dates for a total of 13, with a range of ca. 9500–11,700 cal yr BP (with one outlier at about 7800 cal yr BP).

At La Chimba 13, the vast majority of faunal remains are marine, principally fish and mollusks but also including sea mammals and seabirds. A small number of terrestrial animal remains were recovered, including camelid bones (Lagostera 1977, 1979; Lagostera et al. 1997, 2000).

Lagostera and his colleagues (2000) have now dated several other sites from the same Huentelauquén cultural complex to which they assign La Chimba 13. Two of these sites (El Obispo and Los Medanos 2) have Terminal Pleistocene dates associated with the remains of mollusks, fish, seabirds, and small numbers of marine and terrestrial mammals. Other sites of the Huentelauquén complex are located further south, date to the Early Holocene, and have a larger terrestrial presence among the faunal remains.

The Terminal Pleistocene dates from the northern Huentelauquén Complex sites overlap with the early occupations at Quebradas Jaguay and Tacahuay and extend the geographic extremes of known early maritime adaptations from far northern Peru to northern Chile.

CONCLUSION

What can we learn from this growing but still spotty record of Terminal Pleistocene, maritime-adapted sites in western South America? The sites show that a model of late discovery of the ocean resources can no longer be sustained; people knew how to exploit the sea when they first arrived in western South America, or shortly thereafter. Beyond that, the new data touch on three, interrelated questions: 1) What was the migration route or routes into and through western South America? 2) What was the subsistence adaptation of these early South Americans? And 3) What was the social organization of these people?

When Quebrada Jaguay and Quebrada Tacahuay were first reported in 1998, many commentators (e.g., Gruhn 2000) saw them as proof of the long-suspected coastal migration route through the Americas (Fladmark 1979). Certainly, these sites demonstrate the presence of people in the right places with appropriate adaptations to support this hypothesis. However, we are far from demonstrating that a coastal route was actually used. Although the Amotape Campsites, the Ring Site, and Quebrada Tacahuay lack any evidence of contact with the Andean mountain region, obsidian from Quebrada Jaguay shows a definite connection to the highlands, where people must have gone on forays even if they had not yet settled the higher elevations. Coastal, highland, or parallel migration routes all remain possible—we have far too few sites to connect the dots, nor have we developed a proven means of assessing relationships between inhabitants of different early sites, whether they be on the coast or in the highlands. The known early maritime sites contain few finished artifacts and no human skeletal remains to compare, leaving for the moment only lithic debitage as human-modified material that might show cultural relationships. Ben Tanner (2001) has established a protocol for technological analysis of such collections and applied it to samples from Quebrada Jaguay and Quebrada Tacahuay. However, we need many more assemblages collected and analyzed in the same way before the database is large enough to interpret intersite connections.

In assessing early subsistence systems, we are on firmer ground. The old model of big-game hunting as the exclusive Paleoindian economic strategy has fallen by the wayside. The growing archaeological record for Terminal Pleistocene subsistence also includes

fishing, small game hunting (Roosevelt et al. 1996), and increasing evidence of plant use and even manipulation (Piperno and Stothert 2003). Indeed, as Tom Dillehay (1999: 207) has indicated, many Paleoindian-age Terminal Pleistocene sites reflect a diet once thought typical of the Archaic Period.

Terminal Pleistocene sites of the Peruvian and northern Chilean coasts are too few and too incompletely excavated to offer any firm conclusions about organization. Further, sea level change adds a complicating factor to the settlement record. In the Paján region, for instance, we know that people had contact with the coast and harvested marine organisms, but the shoreline of that time now lies many kilometers offshore along with any sites dedicated to maritime fishing and gathering. Did the same group move between shoreline and coastal plain, or were there separate groups who traded? In the south, we have a probable base camp at Quebrada Jaguay and a probable logistical camp at Quebrada Tacahuay, but given the distance between them, it is unlikely that they belonged to the same settlement system. The maritime-adapted sites of the Huentelauquén Complex in northern Chile are also far apart. The Early Holocene components of these sites share some specific artifacts that suggest they were part of a single group (Llagostera et al. 2000), but that cannot be established for the Terminal Pleistocene components.

The last several decades of research on early coastal sites of western South America have shown us where to look for maritime-adapted sites. There is every reason to believe that many more such sites will come to light in the next decades and will lead us closer to understanding the first inhabitants of the region.

REFERENCES

- Acheson, James M., 1981, Anthropology of fishing. *Annual Review of Anthropology* 10: 275–316.
- Barrington Brown, Charles, 1926, On stone implements from north-west Peru. *Man* 64: 97–101.
- Binford, Lewis, 1980, Willow smoke and dogs' tails: hunter-gatherer settlement systems and archaeological site formation. *American Antiquity* 45: 4–20.
- Bird, Junius B., 1943, *Excavations in Northern Chile*. Anthropological Papers of the American Museum of Natural History, vol. 38, part 4.
- _____, 1948, America's oldest farmers. *Natural History* 17 (7): 296–303.
- _____, John Hyslop, and Milica D. Skinner, 1985, *The Preceramic Excavations at Huaca Prieta Chicama Valley, Peru*. Anthropological Papers of the American Museum of Natural History, vol. 62, part 1.
- Burger, Richard L., Frank Asaro, Paul Trawick, and Fred Stross, 1998, The Alca obsidian source: the origin of raw material for the Cusco Type obsidian artifacts. *Andean Past* 6: 185–202.
- Chauchat, Claude, Elizabeth Wing, Jean-Paul Lacombe, Pierre-Yves Demars, Santiago Uceda, and Carlos Deza, 1992, Préhistoire de la côte nord du Pérou. Le Pajánien de Cupisnique. *Cahiers du Quaternaire* 18. CNRS-Editions, Paris.
- deFrance, Susan D., David K. Keefer, James B. Richardson III, and Adán Umire A., 2001, Late Paleo-Indian coastal foragers: specialized extractive behavior at Quebrada Tacahuay, Peru. *Latin American Antiquity* 12: 413–426.
- _____, and Adán Umire A., 2004, Quebrada Tacahuay: un sitio marítimo del Pleistoceno Tardío en la costa sur del Perú. *Chungará* 36: 257–278.
- Dillehay, Tom D., 1999, The Late Pleistocene cultures of South America. *Evolutionary Anthropology* 7 (6): 206–216.
- _____, Jack Rossen, Greg Maggard, Kary Stackelbeck, and Patricia Netherly, 2003, Localization and possible social aggregation in the Late Pleistocene and Early Holocene on the north coast of Peru. *Quaternary International* 109–110: 3–11.
- Engel, Frédéric A., 1957, Sites et établissements sans céramique de la côte péruvienne. *Journal de la Société des Américanistes* 46: 67–155.
- _____, 1980, *Prehistoric Andean Ecology. Man Settlement and Environment in the Andes*. Humanities Press for Hunter College, New York.

- _____, 1981, *Prehistoric Andean Ecology. Man, Settlement and Environment in the Andes. Volume 2: The Deep South*. Humanities Press for Hunter College, New York.
- Erlandson, Jon M., 2001, The archaeology of aquatic adaptations: paradigms for a new millennium. *Journal of Archaeological Research* 9: 287–350.
- _____, D.J. Kennett, B.L. Ingram, D.A. Guthrie, D.P. Morris, M. Tveskov, G.J. West, and P. Walker, 1996, An archaeological and paleontological chronology for Daisy Cave (CA-SMI-261), San Miguel Island, California. *Radiocarbon* 38 (2): 355–373.
- Fairbanks, Richard, 1989, A 17,000-year glacio-eustatic sea level record: influence of glacial melting rates on the Younger Dryas event and deep-ocean circulation. *Nature* 342: 637–642.
- Fladmark, Knut, 1979, Routes: alternate migration corridors for early man in North America. *American Antiquity* 44: 55–69.
- Grosjean, Martin, Lautaro Núñez, Isabel Cartajena, and Bruno Messerli, 1997, Mid-Holocene climate and culture change in the Atacama Desert, northern Chile. *Quaternary Research* 48: 239–246.
- Gruhn, Ruth, 2000, The South American twist. *Discovering Archaeology* 7: 51–53.
- Keefer, David K., Susan D. deFrance, Michael E. Moseley, James B. Richardson III, Dennis R. Satterlee, and Amy Day-Lewis, 1998, Early maritime economy and El Niño events at Quebrada Tacahuay, Peru. *Science* 281: 1833–1835.
- Lanning, Edward P., 1963, A pre-agricultural occupation on the central coast of Peru. *American Antiquity* 28: 360–371.
- _____, 1967, *Peru Before the Incas*. Prentice-Hall, Englewood Cliffs, NJ.
- Llagostera M., Agustín, 1977, Ocupación humana en la costa norte de Chile asociada a peces local-extintos y a litos geométricos: 9860±160 A.P. *Actas del VII Congreso de Arqueología de Chile* (Altos de Vilches), vol. I, pp. 93–113.
- _____, 1979, 9,700 years of maritime subsistence on the Pacific: an analysis by means of bioindicators. *American Antiquity* 44: 309–324.
- _____, Ismael Kong, and Paola Iratchet, 1997, Análisis ictioarqueológico del sitio La Chimba 13 (II Región, Chile). *Chungará* 29: 163–179.
- _____, Rodolfo Weisner H., Gastón Castillo G., Miguel Cervellino G., and María Antonietta Costa-Junqueira, 2000, El Complejo Huentelauquén bajo una perspectiva macroespacial y multidisciplinaria. *Contribución Arqueológica* 5 (1): 461–482.
- Lynch, Thomas F., 1991, Paleoindians in South America: a discrete and identifiable cultural stage? In *Clovis: Origins and Adaptations*, edited by Robson Bonnicksen and Karen Turnmire, pp. 255–259. Center for the Study of the First Americans, Corvallis, OR.
- McInnis, Heather, 1999, Subsistence and Maritime Adaptations at Quebrada Jaguay, Camaná, Peru: A Faunal Analysis. Unpublished M.S. thesis. Institute for Quaternary Studies, University of Maine.
- Moseley, Michael E., 1968, Changing Subsistence Patterns: Late Preceramic Archaeology of the Central Peruvian Coast. Ph.D. dissertation. Department of Anthropology, Harvard University.
- _____, 1975, *The Maritime Foundations of Andean Civilization*. Cummings, Menlo Park, CA.
- Núñez, Lautaro, Martin Grosjean, Isabel Cartajena, 2002, Human occupations and climate change in the puna de Atacama, Chile. *Science* 298: 821–824.
- Piperno, Dolores R. and Karen E. Stothert, 2003, Phytolith evidence for Early Holocene *Cucurbita* domestication in southwest Ecuador. *Science* 299: 1054–1057.
- Rademaker, Kurt, Daniel Sandweiss, Michael Malpass, Adán Umire, Pablo de la Vera, Louis Fortin, and Ben Morris, 2004, Preceramic Utilization of the Alca Obsidian Source: Recent Results. Paper presented at the 23rd Northeast Conference on Andean Archaeology and Ethnohistory, Yale University.
- _____, Daniel Sandweiss, Michael Malpass, Adán Umire, and Pablo de la Vera, 2005, Alca Obsidian and Early Coast-Highland Interaction in Southern Peru. Poster presented at the 70th Annual Meeting of the Society for American Archaeology, Salt Lake City.
- Richardson III, James B., 1969, The Preceramic Sequence and Pleistocene and Post-Pleistocene Climatic Change in Northwestern Peru. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- _____, 1973, The Preceramic sequence and the Pleistocene and Post-Pleistocene climate of northwest Peru. In *Variations in Anthropology*, edited by Donald W. Lathrap and Jody Douglas, pp. 199–211. Illinois Archaeological Survey, Urbana, IL.
- _____, 1978, Early man on the Peruvian north coast, early maritime exploitation and Pleistocene and Holocene environment. In *Early Man in America from a Circum-Pacific Perspective*, edited by Alan L. Bryan, pp. 274–289. Occasional Papers No. 1 of the Department of Anthropology, University of Alberta.


- _____, 1981, Modeling the development of early complex economies on the coast of Peru: a preliminary statement. *Annals of Carnegie Museum* 50: 139–150.
- Roosevelt Anna C., M. Lima da Costa, C. Lopes Machado, M. Michab, N. Mercier, H. Valladas, J. Feathers, W. Barnett, M. Imazio da Silveira, A. Henderson, J. Sliva, B. Chernoff, D. S. Reese, J. A. Holman, N. Toth, and K. Schick, 1996, Paleoindian cave-dwellers in the Amazon: the peopling of the Americas. *Science* 272: 373–384.
- Sandweiss, Daniel H., James B. Richardson III, Elizabeth J. Reitz, Jeffrey T. Hsu, and Robert A. Feldman, 1989, Early maritime adaptations in the Andes: preliminary studies at the Ring Site, Peru. In *Ecology, Settlement, and History in the Osmore Drainage, Peru*, edited by D. S. Rice, C. Stanish, and P.R. Scarr, pp. 35–84. BAR International Series, 545 (i).
- _____, H. McInnis, R.L. Burger, A. Cano, B. Ojeda, R. Paredes, M. Sandweiss, and M. Glascock, 1998, Quebrada Jaguay: early maritime adaptations in South America. *Science* 281: 1830–1832.
- _____, A. Cano, B. Ojeda, and J. Roque, 1999, Pescadores paleoíndios del Perú. *Investigación y Ciencia* October/277: 55–61.
- _____, Benjamin Tanner, C. Fred T. Andrus, Asunción Cano, Lee Newsome, Dolores Piperno, David Sanger, Martin Yates, Elizabeth J. Reitz, Heather McInnis, Kirk A. Maasch, and Harold W. Borns, in prep., A Paleoindian-age House at Quebrada Jaguay, a Terminal Pleistocene Peruvian Fishing Site.
- Stothert, Karen E., 1985, The Preceramic Las Vegas culture of coastal Ecuador. *American Antiquity* 50: 613–637.
- _____, 1988, La prehistoria temprana de la península de Santa Elena, Ecuador: cultura Las Vegas. *Miscelánea Antropológica Ecuatoriana, Serie Monográfica* 10. Museos del Banco Central del Ecuador, Guayaquil.
- _____, 1992, Early economies of coastal Ecuador and the foundations of Andean civilization. *Andean Past* 3: 43–54.
- Tanner, Benjamin, 2001, Lithic analysis of chipped stone artifacts recovered from Quebrada Jaguay, Peru. M.S. thesis. University of Maine.
- Wing, Elizabeth S., 1992, Les restes de vertébrés. In *Préhistoire de la Côte Nord du Pérou. Le Paijanien de Cupisnique*. *Cahiers du Quaternaire* 18: 42–47. CNRS-Editions, Paris.

Amazonia: The Historical Ecology of a Domesticated Landscape

CLARK L. ERICKSON

INTRODUCTION

When one thinks of Amazonia, images of large towering trees, dark and humid forests, brightly colored frogs, and smiling native people decorated in paint and feathers come to mind. In addition to engaging public awareness, these popular images are used to raise funds for conservation, to advance green politics, and to promote cultural and ecotourism. They are updated versions of nineteenth century imagery common in travel books and explorers' accounts of Amazonia as a Green Hell or as the Garden of Eden. Surprisingly, many colleagues in the natural sciences and conservation still hold similar notions about Amazonia. These romantic views of nature are contrasted to the reality of contemporary humans destroying the ecosystems of Amazonia through modern development. Loss of biodiversity, extinction of species, deforestation, erosion, pollution, and global warming are attributed to humans and their activities. Recent studies argue that humans have been involved in environmental degradation, ecological catastrophe, and global change throughout their existence.

 Traditional historical, geographical, anthropological, and archaeological perspectives on native Amazonia share these negative views. In the classic literature, past and present Amazonian cultures are considered to have been determined largely by the environment to which they adapted. What appears to be a lush, bountiful setting for human development is actually a counterfeit paradise according to some scholars (e.g., Meggers 1971). Environmental limitations, such as poor soils and a lack of protein, combined with a limited technology, few domestic animals, and abundant unoccupied land restricted social development. The simple societies of Amazonia did not evolve into what we recognize as civilization. In this traditional view, the environment is an immutable given or a fixed entity to which human societies adapt (or do not, and thus, fail, and disappear). The basic assumption is that poor environments produce simple societies (band societies of hunters, gatherers, and fishers or

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

tribal societies of subsistence farmers) and the corollary, that rich environments produce complex societies (chiefly and state societies of urban and rural folk).

Historical ecology provides a radical, alternative perspective for understanding human-environment interaction over the long term and the complex human histories of environments. Historical ecology focuses on *landscape* as the medium created by human agents through their interaction with the environment. Although landscapes can be the result of unintentional activities, historical ecologists focus on the intentional actions of people and the logic of indigenous knowledge, particularly the understanding of resource creation and management. Historical ecologists, borrowing from the new ecology, argue that disturbance caused by human activities is a key factor in shaping biodiversity and environmental health. Because much of human-environmental history extends beyond written records, the archaeology of landscapes plays an important role. Through the physical signatures or footprints of human activities, technology, engineering, and knowledge embedded in the landscape, historical ecologists have a historical perspective of over 11,000 years about human-environment interaction in Amazonia.

What Amazonian people did to their environment was a form of *domestication of landscape* (Erickson 2006). Domestication of landscape implies all intentional and non-intentional practices and activities of humans that transform the environment into a productive landscape for humans and other species. Domesticated landscapes are the result of careful resource creation and management with implications for the diversity, distribution, and availability of species. Through their long-term historical transformation of the environment involving transplanting of plants and animals, selective culling of non-economic species and encouragement of useful species, burning, settlement, farming, agroforestry (forest management), and other activities discussed in this paper, humans created what we recognize and appreciate as *nature* in Amazonia. Through the perspective of historical ecology, however, we see that nature in Amazonia more closely resembles a *garden* than a pristine, natural wilderness. Rather than “adapt to” or be “limited by” the Amazonian environment, humans created, transformed, and managed cultural or anthropogenic (human-made) landscapes that suited their purposes. The cultural or anthropogenic landscapes range from the subtle (often confused with “natural” or “pristine”) to completely engineered.

In this chapter, I introduce historical ecology, new ecology, landscape, and domestication of landscape as key concepts for understanding complex, long term interactions between humans and the environment. I show how historical ecology challenges traditional assumptions and myths about Amazonia. Later, I survey examples of human activities that have created, transformed, and managed environments and their association to biodiversity.

In this chapter, I use the term *Amazonia* to refer to the Amazon basin (the entire region drained by the Amazon River and its tributaries) and more loosely to refer to the tropical lowlands of South America or Greater Amazonia (cf. Lathrap 1970; Denevan 2001). As an anthropogenic environment and interacting culture area of considerable time depth, Amazonia is tied to the neotropics or tropical regions of the Americas.

BIODIVERSITY

Any discussion of humans and the environment invokes debates about biodiversity. Dirzo and Raven define *biodiversity* as “the sum total of all of the plants, animals, fungi, and microorganisms on Earth; their genetic and phenotypic variation; and the communities and ecosystems of which they are a part” (2003: 138). Biodiversity is measured through

alpha diversity or the number of species within a locality, *beta diversity* or the change in the composition of species between adjacent areas, and *gamma diversity* or all species in a region. The highest biodiversity is found in tropical regions such as Amazonia.

Biodiversity is assumed to benefit ecosystem function by increasing biomass, resilience, and productivity – although this is under intense debate. Biodiversity provides humans with food shelter, medicines, fiber, fuel, and other services (drinking water, air, and purification of contaminants) and a vast gene pool for future use. Humans have contributed agrobiodiversity or domesticated biodiversity through genetic selection of useful plants and animals (Brookfield 2002). Although these selected plants and animals are only a small number of the total species on earth, they provide most of our food and other resources. Semi-domesticates and wild economic species such as medicines, spices, ornamentals, pets, and utilitarian plants also rely on humans for their protection, propagation, and availability; they are not usually considered in discussions of biodiversity but are significant.

HISTORICAL ECOLOGY

At its most basic, historical ecology is about people and their interactions with the environment through time (Balée 1989, 1998, 2006; Balée and Erickson 2006b; Crumley 1994). Although the case studies presented here focus on the contributions of the archaeology of landscapes, historical ecology is inherently multidisciplinary with contributions from botany, zoology, linguistics, soil science, agronomy, anthropology, history, geography, ecology, genetics, demography, climatology, geology, soil science, and many other fields (for examples, Balée 1998; Balée and Erickson 2006a; Crumley 1994; Glaser and Woods 2004; Hayashida 2005).

In doing historical ecology of landscapes, archaeologists practice a form of *reverse engineering*. Recognizing fragmentary physical patterns in sites and landscapes as reflecting human culture, archaeologists carefully document and analyze the evidence within its temporal and spatial context for insights into original logic, design, engineering, and intentionality of human actions. Due to the incomplete nature of the archaeological record, interpretation relies on careful use of analogy to specific historical and ethnographic cases or general cross-cultural models about human behavior. In the case of historical ecology, reverse engineering helps reveal the infrastructure and strategies of environmental management embedded in landscapes. Using this approach, historical ecologists can document and evaluate the successes and failures of human strategies through an examination of continuity and disjuncture in the archaeological record. Distinguishing between natural and cultural (or anthropogenic) processes of environmental change is possible with careful contextual analysis.

Traditional perspectives on human-environmental interaction separate and oppose people and nature. Humans are said to either co-exist in harmony with nature or over-exploit and degrade nature. In cultural ecology, human ecology, cultural materialism, and evolutionary ecology, nature is a fixed given entity that humans interact with and adapt to and their success and failure are measured (Moran 1982; Sutton and Anderson 2004). In cultural evolution and cultural ecology, societies are assumed to pass through sequential stages of development from simple to complex. Increasing control of energy, elaboration of technology, population growth, and formation of political hierarchy are implicit to this lineal scheme as societies advance towards civilization. Differing degrees of human impact and transformation of the environment are attributed to each cultural evolutionary stage.

Band societies are assumed to have low or minimal impact while states are understood to have high impact (e.g., Redman 1999; Sutton and Anderson 2004).

In contrast to evolutionary approaches where natural selection and ecological processes determine the course of interaction of the human species and environments, historical ecologists propose that “the human species is itself a principal mechanism of change in the natural world, a mechanism qualitatively as significant as natural selection” (Balée and Erickson 2006b: 5). While not ignoring evolutionary and ecological processes, historical ecologists prioritize the historical processes, temporal and geographic scales appropriate for study of humans (often multiple), and human agency (intentionality, innovation, aesthetics, and creativity). Rather than “adapt” to an environment, humans practice *resource management* through which they create the environment in which they live. Balée defines resource management as “the human manipulation of inorganic and organic components of the environment that brings about a net environmental diversity greater than that of so-called pristine conditions, with no human presence” (1994: 117).

THE NEW ECOLOGY

A basic principle of ecology is succession theory or ecological succession (Clements 1916). Nature is assumed to have an ideal state or “climax community”. A community such as a forest evolves through a series of orderly stages. At its mature, final stage, a community is said to be in equilibrium with a stable composition of specific species. Although equilibrium can be thrown out of balance by natural phenomena (windstorms, landslides, and wildfires), the community is assumed to recover and return to its optimal state. Much of traditional ecology, environmental science, and conservation are based on the notion that equilibrium and stability are good for nature. The mature, age old rainforests of Amazonia are rich with biodiversity and are considered prime examples of undisturbed, mature wilderness or a climax community.

In recent decades, *new ecologists* have questioned the assumptions of succession theory (Botkin 1990; Connell 1978) and criticize traditional conservation based on succession theory’s idea that nature should be protected from disturbance, change, and people. In contrast to succession theory, the *new ecology* considers natural disturbances not only common, but, integral to ecosystem health and biodiversity. The instability, non-equilibrium, and at times chaos created by disturbance encourage environmental heterogeneity through the creation of patches, mosaics, and edges of distinct habitats where diverse species can compete and thrive (Botkin 1990; Zimmerer and Young 1998).

Borrowing insights from the new ecology, historical ecologists focus on human activities as a major source of disturbance (Balée and Erickson 2006a; Stahl 2000, 2006; Zimmerer and Young 1998). In contrast to natural disturbances, human or anthropogenic disturbances are highly patterned in timing, frequency, intensity, scale, context, complexity, and diversity (Blumler 1998; Erickson 2006; Pyne 1998). Common examples of human disturbance are burning, erosion, settlement, roads, farming, and deforestation, but can also include subtle activities such as weeding, transplanting, cultivation, fertilizing, and seeding which encourages certain species over others and which may increase overall biodiversity and biomass. Despite the negativity implied, disturbance by humans usually involves intentionality and planning, although the long term effects may be unknown and unintended when they occur.

Building on the findings of new ecologists that intermediate levels of disturbance are optimal for species diversity, Blumler (1998) suggests that a variety of disturbances and

timing or *disturbance heterogeneity* are as important as intensity. Human disturbances keep the environment in a form of arrested succession and disequilibrium. Secondary rather than primary forest is encouraged, which may increase biodiversity, biomass, and ecosystem heterogeneity, especially of wild and domesticated species exploited by humans that thrive in such contexts.

LANDSCAPES

Whereas most traditional archaeologists study *sites*, archaeologists doing historical ecology focus on the largely ignored space between sites or *landscape* (Ashmore and Knapp 1998). In the rural Andes and Amazon where I work, people do most of their daytime activities such as farming, building walls, visiting neighbors, sharing labor, and collecting wild resources in the landscape rather than within the confines of sites which are primarily used for eating and sleeping. Because the totality of people's lives in the past is important, archaeologists must include landscapes in their studies.

Because they are physical and created by repetitive activities through time, landscapes are ideal artifacts for historical ecologists. Archaeologists often apply the metaphor of "reading" landscapes in the sense that cultural patterns created through human activity have meaning and intent that can be deciphered through contextual analysis. Permanent improvements to the land are considered *landscape capital*, investments that are handed down generation after generation (Brookfield 2002). Later generations benefit from the labor and knowledge of their ancestors embedded in landscape. In a recursive relationship, their lives are often structured by roads, trails, paths, field boundaries, irrigation canals, and clearings for houses imposed on the landscape by past inhabitants. Multiple, often contrasting, landscape patterns, which represent different systems of land use and management, are often embedded in landscapes as palimpsests or layered, sequential traces.

AMAZONIA: WILDERNESS OR CULTURAL LANDSCAPE?

The high canopy tropical rainforest, famous for its complexity and biodiversity, is the focus of contemporary research and conservation. Many scholars and the public consider the mature, tropical rainforest to be the ideal natural state of Amazonia, a classic wilderness. In succession theory, mature rainforest is assumed to be the climax community in stable equilibrium. Because these rainforests are relatively devoid of humans today, one might assume that biodiversity is highest in environments undisturbed by humans.

Amazonia-as-wilderness is an example of the *Myth of the Pristine Environment* (Denevan 1992), the belief that the environments of the Americas were relatively untouched by humans prior to European conquest. Native people are believed to have been too few in number, technologically limited, or living harmoniously with the Earth to significantly impact nature. The assumption is also based on the *Myth of the Noble Savage* (or Ecological Indian)—that past and present native people lived in harmony with nature until Europeans and modern world systems arrived, which negatively and permanently transformed the previously pristine environment (Redford 1991).

Archaeologists, however, have demonstrated that much of Amazonia was occupied by dense populations of urbanized societies practicing intensive agriculture that significantly contributed to creating the environment that is appreciated today (Denevan 1992;

Erickson 2006; Heckenberger 2005; Lehmann et al. 2003; Stahl 1996). Scholars now argue that much of the tropical rainforest is the result of a “rebound effect” created by the removal of these people and their activities by European diseases, civil wars, ethnocide, slavery, and resource expropriation. Without the insights of historical ecology, Amazonia is easily misinterpreted as pristine wilderness.

Contrary to popular notions, Amazonia is diverse in environments and was probably more so in the past. While rainforest covers approximately one third of the region, the majority of Amazonia is deciduous forest, palm forest, liana forest, forest island, savanna, and wetland (Goulding et al. 2003; Moran 1993; Smith 1999). Other classic distinctions include riverine (*várzea*) vs. upland (*terra firme*) and white, clear, and black water rivers.

In addition, historical ecologists argue that much of Amazonia’s diverse ecological patchwork of diverse habitats is anthropogenic and historical (Posey and Balée 1989; Balée and Erickson 2006a). Before the native population collapse after 1492, archaeologists show that much of Amazonia was transformed by burning, settlement, roads, agriculture, and agroforestry into forest clearings, savannas, parkland, countryside, and forest islands (Denevan 1992, 2001; Erickson 2006; Heckenberger 2005; Heckenberger et al. 2003; Posey 2004; Stahl 2006). The “natural” fauna and flora composition were replaced by anthropogenic formations. Amazonia had fewer trees five hundred years ago and the existing forests were more similar to gardens, orchards, and game preserves than wilderness.

AMAZONIA: A COUNTERFEIT PARADISE OR ANTHROPOGENIC CORNUCOPIA?

Environmental determinism has a long history in anthropological studies since the nineteenth century. Scholars believed that races, cultural diversity, cultural stability and change could be explained by the environmental conditions under which these traits developed. In this view, the environment is treated as a given fixed context to which societies adapt or fail. In Amazonia, the limitations include soils, technology, protein, and catastrophic climate change. The main spokesperson of environmental determinism, Betty Meggers (1954, 1971, 2001) explained the presence of simple societies and relatively nomadic lifeways of Amazonian people in the historical and ethnographic accounts as evidence of environmental limitations imposed on human cultural development. According to her Theory of Environmental Determinism, societal development is encouraged or limited by the conditions to which humans have to adapt. In the case of Amazonia, the poor quality of tropical soils is said to have restricted agriculture to simple systems such as slash-and-burn (swidden) (Carneiro 1960; Meggers 1971). Adopting the idea from natural scientists and developers that the lush, rich vegetation of the tropical forests is actually fragile ecosystem growing on poor soils, Meggers (1971) coined the term *counterfeit paradise* to describe Amazonia.

Swidden is the most common traditional agriculture today, involving clearing isolated patches of forest, drying and burning the felled vegetation, and planting crops among the ash. Crops are rotated for several years and the field is abandoned eventually as weeds and secondary growth increase labor (abandonment was originally thought to be due to soil exhaustion). Over a period of 10–20 years, secondary forest covers the plot. Because the farmer clears and burns another stand of forest every 3–5 years, a large area is needed and settlements are frequently relocated; thus, slash-and-burn agriculture is assumed to support low population densities. Without large populations, surplus to support non-farmers and

class stratification, and cities, Amazonia could never develop civilization. Environmental determinists also point to primitive technology as a reason for simple agriculture: the wooden digging stick, stone ax, and wooden machete.

Others examined the lack of animal protein as an environmental limitation. According to the Hypothesis of Protein Limitations, scholars proposed that the availability of protein determined settlement, population density, and inter and intra-societal relationships in Amazonia (Gross 1975). Unlike societies in the Old World, Amazonian people had few domesticated animals to provide reliable protein; and thus, they were assumed to have relied on unpredictable and easily overexploited hunting of wild animals. Based on ethnographic cases, scholars argued that typical settlement size, duration, and regional patterns could be explained by the lack of protein. In more extreme interpretations, Amazonian patterns of warfare, settlement spacing, and mobility, were explained by the fierce competition over limited hunting resources (Chagnon and Hames 1979).

Meggers (1979, 1995, 2001) proposes catastrophic climate change as a new element of environmental determinism to explain periodic settlement abandonment and changes in pottery styles in the archaeological record. She hypothesizes that cycles of mega-El Niño events throughout prehistory caused severe and extended floods and droughts that caused frequent societal collapse, encouraged nomadic patterns of settlement, and limited social development. Recent El Niño events have caused droughts and flooding in Amazonia, often resulting in large forest fires that have been exacerbated by uncontrolled development of the region. Pre-Columbian societies faced similar challenges and survived. However, the evidence presented for catastrophic climate change by mega-El Niños and its impact on humans has been challenged (e.g., DeBoer et al. 1996; Erickson and Balée 2006; Stahl 1991; Whitten 1979).

Few contemporary scholars support environmental determinism. Carneiro (1960) points out that slash-and-burn agriculture under careful management can be highly productive, yield surpluses, and sustain large, sedentary villages of 1000 to 2000 people. Others highlight the importance of bitter manioc, a crop that thrives on poor soils and can be converted into a storable surplus as dry flour (Lathrap 1974; Heckenberger 1998).

In the 1960s, scholars documented intensive agriculture in pre-Columbian Amazonia including house gardens, river levee farming, raised fields, terraces, Amazonian Dark Earth (ADE), and anthropogenic forest islands (Denevan 2001; Denevan et al. 1988; Langstroth 1996; Lathrap 1970, 1985, 1986; Posey 2004). In contrast to low energy, extensive agriculture such as slash-and-burn, which requires long periods of fallow during which fields regain fertility, intensive agriculture, which has little or no fallow period and fertility, is maintained through inputs of labor and organic matter. Archaeologists and geographers highlighted the potential of farming river levees and banks when floods recede (Hiraoka 1985; Smith 1999). Raised fields, terracing, and ADE (discussed below) are capable of continuous, high yields and are associated with dense populations, large permanent settlements, and complex society (Denevan 2001; Erickson 2006; Lehmann et al. 2003; Neves and Petersen 2006; Valdez 2006; Walker 2004). These strategies take advantage of patches of naturally fertile soil and technologies of soil creation, transformation, and management and negate environmental determinism. Slash-and-burn agriculture depends on metal axes and machetes to efficiently clear primary forest. These tools were unavailable until after 1492 (Denevan 2001). Pre-Columbian farmers, using digging sticks and stone axes probably continuously cultivated fields and practiced agroforestry rather than clear primary forest.

In critiquing the Hypothesis of Protein Limitation, scholars noted that most groups studied as examples of protein limitation live inland, far from major water bodies and

fish. In fact, Amazonian people were primarily riverine cultures and relied on fish and other aquatic resources as the main source of protein rather than game animals (Beckerman 1979). In addition to rivers and lakes, fish were systematically harvested in large numbers using networks of fish weirs (Erickson 2000). Furthermore, maize is a storable staple crop and provider of protein (Lathrap 1987; Roosevelt 1991) and other sources of protein were available, including nuts, fruits, and insects common in the humanized forests (Beckerman 1979; Clement 2006).

NATIVE AMAZONIAN PEOPLE: WITH OR AGAINST NATURE?

Indigenous people of Amazonia have become the subject of an intense debate about whether native people enhance or degrade biodiversity and environmental health. In some more extreme critiques, Amazonian people are considered to be no better or worse than Westerners (Alvard 1995; Redford 1991). But modern Western society often views the relationship of native people to the environment as positive in contrast to its own. Assumed to be living in harmony with nature, it is thought that native people must have an innate conservation ethic and thus, are considered the natural stewards of the environment. This powerful belief is the Myth of the Noble Savage. Much of the debate about native Amazonia focuses on documentation of over hunting of game animals. Rather than being omniscient curators of their environment, it can be argued Amazonian people were environmentally friendly due to low, dispersed populations, plenty of resources, simple technology, and settlement mobility rather than an innate conservation ethic.

In studies debunking the myth, game animals are treated as a natural and immutable resource subject to unsustainable overexploitation. Historical ecologists point out that the important game animals feed heavily on fruits and nuts provided by the anthropogenic forests established by the past inhabitants of Amazonia. Oligarchy or forests of a single species, usually a tree valuable to humans and game animals, is attributed to past human management (Peters 2000). In addition, most contemporary hunter-gatherers rely on the economic species of anthropogenic forests, the landscape capital of their ancestors. Humans created the conditions for the “natural” resources that they are blamed for degrading.

While scholars debate humans as agents of conservation vs. humans as agents of degradation, historical ecologists eschew the distinctions and argue that humans are neither (Balée 1998; Balée and Erickson 2006b). Rather than possessing an innate conservation ethic of preservation, native Amazonians consciously exploited their environments for subsistence while practicing resource creation and management. The management, a form of multigenerational indigenous knowledge about the environment, is based on local practical indigenous knowledge. Some historical ecologists consider humans to be a keystone species: a species that plays a disproportionate role in ecosystem health and the abundance and availability of other species (Balée and Erickson 2006b).

Whether human activities degrade or enhance biodiversity often depends on how biodiversity and environmental health are defined and measured, the temporal and geographical scale used for comparison, and the standard or a benchmark to which altered environments can be compared and evaluated. Because the impact of human activities is so early, widespread, and profound in Amazonia, most historical ecologists argue that there is no appropriate pristine benchmark for comparison. In some cases, Amazonian people enhanced biodiversity and practiced environmentally sustainable practices; in other cases

the diversity of species was reduced and environments degraded. What may have been negative impacts over the short term and locally may actually enhance biodiversity over the long term and at the regional scales and vice versa. In many documented cases, human creation, transformation, and management of the Amazonia over thousands of years resulted in the high biodiversity that is appreciated today.

AMAZONIAN PEOPLE: ADAPTATION TO OR CREATION OF ENVIRONMENTS?

Culture ecologists emphasize the concept of adaptation, modified from natural science and evolution, to explain cultural variation and the success and failure of native societies in Amazonia (e.g., Meggers 1971; Moran 1982; Sutton and Anderson 2004). Cultural ecologists consider adaptations to the environment through human culture (material culture, technology, social organization, and settlement patterns) that undergo selection with beneficial behaviors favored and passed to future generations. The adaptation concept treats the environment as a static, fixed, often limited resource to which humans adapt. The concept is also believed to explain human cultural diversity through reference to unique adaptations to the exigencies of their particular environmental context.

Historical ecologists reject the assumptions of adaptation. Rather than adapt or respond to the environment, Amazonian people created, transformed, and managed those very environments in which they lived and thrived through their culture and accumulated multigenerational knowledge and management practices (Balée 1989, 2006; Balée and Erickson 2006a; Erickson 2006).

ELEMENTS OF A DOMESTICATED LANDSCAPE

Evidence of landscape creation, transformation and management of domesticated, engineered, humanized landscapes in Amazonia includes: anthropogenic burning, settlements and associated landscapes, mounds, anthropogenic forest islands, ring ditch sites, Amazonian Dark Earth (ADE), raised fields, transportation and communication networks and, water management, fisheries management, and agroforestry.

Anthropogenic Burning

Fire is the oldest and most powerful technology of environmental creation, transformation, and management available to native people (Figure 11.1). Thousands of fires can be detected daily on satellite imagery of Amazonia. For most natural scientists and conservationists, fires caused by humans are considered to be the worst threat to Amazonian rainforests and biodiversity. Complex fire histories documented in lake sediment cores, soil stratigraphy, and archaeological sites suggest that humans regularly burned Amazonia in the past (Oliveira and Marquis 2002; Lehmann et al. 2003; Sanford et al. 1985). Anthropogenic fires are distinguished from natural fires by their regularity, context, timing, and patterns (Pyne 1998).

Hunters and gatherers burn landscapes to remove old vegetation for new to attract browsing game, clear the understory for easier movement and harvesting of wild plants, encourage economic species attracted to light gaps and disturbance, and hunt game through cooperative drives employing fire and smoke. Farmers employ burning to clear and prepare



Figure 11.1. Savanna management using fire in the Bolivian Amazon. Baures in 1999. (Clark Erickson)

fields, gardens, orchards, and settlements, fertilize fields, incinerate garbage, and reduce bothersome insects (Pyne 1998). Regular burning prevents runaway fires stoked by accumulated fuel. Burning and the production of charcoal is a key element in the formation of Amazonian Dark Earth (discussed below).

Most scholars now agree that fire plays a key role in the creation and maintenance of Amazonian environments, in particular savannas and dry deciduous forests that cover much of Amazonia (Langstroth 1996; Oliveira and Marquis 2002).

Settlement and Associated Landscape

Human settlements may be one of the most persistent and permanent transformations of the Amazonian environment. Scholars have recorded a wide variety of settlement types and regional settlement patterns for past and present Amazonian people (Denevan 1996; Durán and Bracco 2000; Erickson 2003; Heckenberger 2005; Neves and Petersen 2006; Roosevelt 1991; Wust and Barreto 1998). While most settlements were small (less than 1 ha), the archaeological site under the present day city of Santarem in Brazil covers 4 km² and the Faldas de Sangay site in Ecuador is possibly 12 km² (Roosevelt 1999). Traditional communities had large, open, clean central plazas and streets along which houses were arranged in linear, grid, radial, or ring patterns.

The typical Amazonian house is a simple example of resource use and local landscape transformation (Figure 11.2). The foundation requires 4 to 6 upright wooden posts plus additional beams (each representing a tree). Earthen floors are often raised 10–20 cm for drainage during the wet season (1.5–3.0 m³ for a 3 × 5 m house). Thick layers of palm and grass thatch cover the roof. A typical Pumé community would require 13,498 fronds of palm which is replaced every 2 to 3 years, and 750,000 fronds from 125,000 palms for a large communal house of the Bari (Gragson 1995). Vegetation around the house is cleared to bare ground for protection against snakes and for aesthetic reasons. A small but densely packed house garden is established for spices, colorants and dyes, medicinal



Figure 11.2. Amazonian house, clearing, work areas and house garden. Fatima in 2006. (Clark Erickson)

plants, tobacco, cotton, hallucinogens, and fish poisons. The garden is also a compost pile for kitchen waste. In humid tropical regions, houses last 5 to 10 years. In summary, the environmental impact of a single house is profound: rearranging and altering soils, accumulation of organic matter through garbage and human wastes, deforestation and opening of forest canopy, cutting of construction and roofing materials, replacement of natural vegetation with economic garden, crop, and orchard species, and mixing of the soil horizons. Denevan (2001) estimates a pre-European conquest native population of 6.8 million for Amazonia. Assuming 5 people per household, some 1,360,000 houses were required in a single moment. The environmental impact described above for a single household is now multiplied by over one million houses across the landscape.

House gardens were associated with individual residences and there was a larger clearing for staple crops in the forest with raised fields in savannas and wetlands or on exposed river banks beyond the settlement. Stream channels and wetlands were criss-crossed with fish weirs (corrals for harvesting fish). Any standing forest within a 5-km radius was a managed forest. Pathways were hacked through the forest and roads within settlements were often raised or defined by earthen berms, and other infrastructure. In the savannas, large earthen causeways with adjacent canals served as roads and canoe paths. In addition, each settlement required firewood, game, fish, and other wild resources in quantity.

A community's permanent transformation of the environment for these basic needs and infrastructure is staggering (Figure 11.3). As a result, the forested environments that are typical today were scarce in the past and of a much different character. Based on the archaeology, these communities were stable, long-lived, and sustainable despite this impact.



Figure 11.3. The Amazonian settlement and adjacent landscape of gardens, fields, agroforestry, roads, paths, orchards, garbage middens, and forest regrowth at various stages. The dark circular feature in the center is a precolumbian ring ditch site. Jasiaquiri, Baures in 2006. (Clark Erickson)

Mounds

Many Amazonian cultures were impressive mound builders (see chapters in Part IV of this volume) (Denevan 1966; Durán and Bracco 2000; Erickson and Balée 2006). Farmers built mounds in the Llanos de Mojos of Bolivia, Marajo Island and the lower and central Amazon basin and Pantanal of Brazil, the Llanos de Venezuela, Mompos basin of Colombia, Sangay in the Upano Valley and Guayas Basin of Ecuador, and the coastal plains of Guyana, Brazil, Uruguay, and Ecuador. Mounds were constructed of earth with the exception of the *sambaquis* of coastal Brazil which are primarily of shell. Excavations show that many mounds served multiple functions, often simultaneously. Mounds generally contain fill or layers of domestic debris (bones, shell, and other organic food remains, pottery, and stone tools) typical of settlements. Some mounds have such a high percentage of broken pottery that scholars apply the term “potsherd soils” (Langstroth 1996). Mounds were formed over considerable time through the collapse and leveling of wattle and daub buildings, accumulation of refuse and construction debris, and the intentional addition of fill from adjacent large borrow pits, often filled with water. Mounds in the Llanos de Mojos and on Marajo Island contain hundreds of human burials in which a large pottery urn with lid was used for a coffin (Nordenskiöld 1913; Roosevelt 1991). Other mounds were used as chiefly residences or ceremonial centers (Rostain 1999; Lopez et al. 2002).

Although most are small, the Ibibate Mound Complex in the Bolivian Amazon covers 11 ha and is 18 m tall with over 250,000 m³ of fill (Erickson and Balée 2006). Mounds

are often found in groups of up to 40 for Marajo Island (Roosevelt 1991), and more than 50 mounds for the Huapula site (Rostain 1999). Mounds, as highly visible monumental features on the landscape, were probably a source of civic pride, a place where ancestors were buried in urn coffins, and an elevated spot above annual floodwaters to establish residences, gardens, cemeteries, ceremonial centers, elite complexes, and public space.

Mound construction required mass movement of soils, transformation of local topography, soil enrichment, and change in vegetation composition. Our study of the Ibibate Mound Complex in the Bolivian Amazon demonstrates that the biodiversity on the mounds was much significantly richer than that of the surrounding landscape and consists primarily of economic species, some 400 years after abandonment as a settlement (Erickson and Balée 2006).

Anthropogenic Forest Islands

Forest islands are common throughout the savannas and wetlands of Amazonia (Figure 11.4). Forest islands range in size from a few hectares to many square kilometers. Most are raised less than one meter and often surrounded by ponds or a moat-like ditch. Excavations in forest islands in the Llanos de Mojos and Pantanal document their anthropogenic origins and use for settlement, farming, and agroforestry (Erickson 2000a, 2006; Walker 2004; Langstroth 1996). In Bolivia, archaeologists estimate the existence of 10,000 forest islands (Lee 1995; CEAM 2004). The Kayapó of Central Brazil create forest islands (*apêtê*) of improved soils through additions of organic matter from household middens and recycling of crop debris for intensive cultivation of crops (Posey 2004; Hecht 2003). These anthropogenic features are known for their high biodiversity and agrodiversity.



Figure 11.4. Forest island in the savanna, Machupo River, in 2006. (Clark Erickson)

Ring Ditch Sites

Ring ditch sites are reported in the Bolivian Amazon (Figure 11.5), Matto Grosso, Acre, and Upper Xingu River regions (Erickson 2002; Heckenberger 2005; Parssinen et al. 2003; Ranzi and Aguiar 2004). These sites consist of a closed or U-shaped ditched enclosure or multiple ditches. Heckenberger (2005) describes numerous sites with large open plazas and radial roads marked by earthen berms extending through residential sectors enclosed by deep semi-circular moat-like ditches and embankments. Early explorers described villages that were protected by wooden palisades and moats. If palisaded, a typical ring ditch site would require of hundreds or thousands of tree trunks, a considerable environmental impact.

Ring ditch sites in Acre and the Bolivian Amazon, described as geoglyphs because of their impressive patterns (circular, oval, octagon, square, rectangle, and D-shapes), appear to be more ceremonial than residential or defensive (Figure 11.6). Some ring ditch sites are



Figure 11.5. Precolumbian ring ditch site. The main ditch is approximately 3 m deep. A smaller ditch can be seen to the left. Baures in 2006. (Clark Erickson)



Figure 11.6. An octagon-shaped ring ditch site in the Bolivian Amazon. The ditch measures 108 m in diameter and 2 m deep. Santiago, Baures in 2006. (Clark Erickson)

associated with ADE. Modern farmers in the Bolivian Amazon intensively farm these sites and those covered with forest are good locations for hunting game and gathering fruit.

Amazonian Dark Earth (ADE)

As discussed earlier, soils have been central in debates about environmental potential and cultural development in Amazonia and play a major role in enhancing resource biodiversity and biomass. Rather than adapt to limited soils, we now recognize the ability of Amazonian farmers to improve and manage marginal tropical soils through creation of settlement mounds, forest islands, raised fields, and Amazonian Dark Earth (ADE).

ADE or Indian black earth (*terra preta do indio*) is an important subclass of anthrosols or anthropogenic soils and associated with archaeological sites (Smith 1980; Erickson 2003; Lehmann et al. 2003; Glaser and Woods 2004; Neves and Petersen 2006). A lighter color ADE, *terra mulata*, often surrounds *terra preta*. ADE is estimated to cover between 0.1 to 10% or 6000 to 600,000 km² of the Amazon basin. ADE sites range from less than one hectare to as large as 200 ha in size. ADE was probably used for settlement, house gardens, and permanent fields rather than slash-and-burn agriculture, the common practice today. Scholars believe that these soils were created specifically for permanent farming. Today ADE is prized by farmers for cultivation and in some cases, mined as potting soil for markets in Brazilian cities.

ADE is rich in typical domestic debris found in archaeological sites including potsherds, bone, fish scales, shell, and charcoal. The extremely dark color and fertility is due to large quantities of charcoal and other organic remains that sharply contrast to the surrounding poor reddish tropical soils. In contrast to slash-and-burn agriculture where complete combustion of felled forest is the goal, ADE farmers practiced “slash and char,” a technique to produce biochar or charcoal through low temperature, incomplete combustion in a reduced atmosphere. Biochar has been shown to be a high quality soil amendment for enhancing and maintaining soil fertility over hundreds of years. In addition, ADE is a rich habitat for beneficial microorganisms. Once established, ADE is a living entity that may sustain and reproduce itself (Woods and McCann 1999). The presence of intact ADE after 400 to 500 years is evidence its permanence, sustainability and resilience. Ethnobotanical studies document high biodiversity on ADE (Balée 1989; Smith 1980). The number of soil microorganisms in ADE alone may be quite large. Although understudied, potential contribution of microorganisms in ADE to overall biodiversity is substantial.

If ADE was formed as the simple unintentional byproduct of long-term residence in a locale, we would expect to find black earth sites at any location where past human occupation was dense and of long duration. Archaeological sites fitting these criteria are common throughout Amazonia but do not have ADE. This suggests that ADE formation, which involves careful production of biochar and management of soil microorganisms, is intentional soil engineering. ADE is an excellent example of landscape domestication below the ground.

Raised Fields

Raised fields are probably the most impressive example of landscape engineering at a regional scale in Amazonia (Denevan 1966, 2001; Erickson 1995, 2006; Walker 2004). Raised fields are large platforms of earth raised in seasonally flooded savannas and permanent wetlands for cultivating crops (Figure 11.7). Excavations and agricultural experiments suggest that raised fields served multiple functions, including drainage of waterlogged



Figure 11.7. Precolumbian raised fields, canals, and causeways in the Bolivian Amazon. The clearing is now a ranch and the causeways are used as paths. San Ignacio in 2006. (Clark Erickson)

soils, improvement of crop conditions (soil aeration, mixing of horizons, and doubling of topsoil), water management (drainage and irrigation), and nutrient production, capture, and recycling in canals alongside each platform. Crop production in experimental raised fields is impressive and up to double that of non-raised fields (Erickson 1995, 2006; Stab and Arce 2000; Saavedra 2006). Based on high productivity and substantial labor costs to construct, raised fields were probably in continuous production. In addition to traditional crop cultivation on the platforms, aquatic resources such as edible fish, snails, reptiles, and amphibians could be raised in the adjacent canals. Canals also trap organic sediments and produce organic “green manure” and “muck” that can be periodically added to the platforms for sustained cropping.

Raised field agriculture represents a massive landscape transformation at a regional scale through rearranging soils, changing hydrology, and imposing a heterogeneous microtopography of alternating terrestrial and aquatic ecosystems on landscapes that originally were relatively flat and biologically homogeneous and of limited production. Landscape engineering of this magnitude substantially increased biodiversity and biomass in savannas and wetlands. The presence of raised fields in deep forests of the Bolivian Amazon suggests that the landscape was open savanna maintained by regular burning when the fields were used. After abandonment and cessation of burning, forests returned with trees arranged in orchard-like rows on the eroded raised fields.

Transportation and Communication Networks and Water Management

Transportation and communication networks in the present and past have significant environmental impacts at the local and regional scale. Paths, trails, and roads connect settlements

and people and, like modern roads, bring development and new settlements, expand farming, and cause environmental change. All Amazonian societies use elaborate networks of paths and trails and roads between settlements, gardens, fields, rivers, resource locations, and neighbors. The Kayapó maintain thousands of kilometers of paths (Posey 1983 in Denevan 1991). Posey (2004) documents subtle anthropogenic impact along Kayapó paths created by the discard of seeds from meals and snacks and transplanting of economic species along path clearings. These resources also attract game animals, making them easier to find and hunt. The long linear disturbance and light gap created by clearing and maintenance of paths produces distinct anthropogenic vegetation communities that penetrate deep into the forest.

Some advanced Amazonian societies built impressive formal roads, causeways, and canals of monumental scale (Figure 11.8). Large and small sites in the Tapajós and the Upper Xingú regions are connected by traces of networks of straight roads with earthen berms suggesting hierarchical socio-political organization at a regional scale (Nimuendajú 1952; Heckenberger 2005). The earliest explorers of the Amazon River reported similar wide straight roads connecting large riverine settlements to the distant hinterlands (Denevan 1990).

The late pre-Columbian inhabitants of the Llanos de Mojos and Baures regions in the Bolivian Amazon completely transformed the environment into a highly patterned landscape of complex networks of raised earthen causeways and canals (Denevan 1990; Erickson 2001, in press). These earthworks had multiple functions including transportation and communication, water management and production of aquatic resources, boundary and territorial markers, and as monumental ritual and political statements. Their



Figure 11.8. Four precolumbian causeways and canals connecting forest islands in the Bolivian Amazon. The palm covered causeways are 3 to 4 m wide and 1 m tall with adjacent canals of 2 to 3 m wide and 1 m deep. Baures in 2006. (Clark Erickson)

construction was often intended for water management and the creation of artificial wetlands at the local and regional scale. On near flat savanna, a causeway of 1 m tall and 2 km long between the high ground of two adjacent river levees could potentially impound 5 million m³ of water. Canals brought water for irrigation and provided drainage when necessary.

Amazonians are classic canoe people and transport and communication by water is a basic element of tropical forest culture (Lathrap 1970; Lowie 1948). Most Amazonian people would rather paddle a canoe than walk. Nordenskiöld (1916) pointed out that most of the major headwaters of Amazonian river drainages connect to the headwaters of adjacent river drainages. Some of these aquatic connections such as the Casiquiare Canal between the major Negro and Orinoco drainages and the Pantanal between the Guaporé and the Paraguay drainages are partially anthropogenic. Artificial river meander short cuts are common in the Llanos de Mojos of the Bolivian Amazon, Amapá Region of the Central Amazon basin, and the Ucayali River of Peru (Abizaid 2005; Denevan 1966; Nordenskiöld 1916; Raffles and Winkler-Prins 2003). The large meander loops of typical rivers of Amazonia are challenges to canoeists, often requiring hours or even days of paddling to move short lineal distances. The problem is solved by cutting short linear canals or repeatedly dragging a heavy dugout canoes in the same location between the neck of a large looping meander to save travel time. In a number of cases, these anthropogenic canals created a new river course, dramatically and permanently changing the regional hydrology.

Inter-river canals are common in the Llanos de Mojos of Bolivia. Pinto (1987) describes a complex network of natural channels combined with artificial canals to allow canoe traffic over 120 km perpendicular to natural river flow. In other cases, artificial canals tapping the headwaters of two adjacent rivers diverted the flow of one into the other permanently transforming the hydrology of two drainage basins (CEAM 2003).

Fisheries Management

Fishing is now recognized as the major traditional source of protein in the Amazon basin (Chernela 1993; Beckerman 1979; Erickson 2000b). In contrast to other civilizations that domesticated fish, Amazonian people artificially enhanced the natural habitats of wild fish to increase availability through creation of artificial wetlands and expanding the capacity of existing wetlands through construction of raised field canals, causeways and other water management techniques.

The Baures region of Bolivia is an excellent example of landscape domestication for the improvement of natural fisheries (Erickson 2000b). Low linear earthen ridges zigzag across the seasonally inundated savannas between forest islands with funnel like opening located where the earthworks changed direction (Figure 11.9). These features are identified as fish weirs based on descriptions in the ethnographic and historical literature. Fish weirs are fences made of wood, brush, basketry, or stones that extend across bodies of water. Baskets or nets are placed in openings to trap migrating fish. Most fish weirs are simple ephemeral structures on a river or shallow lake. In contrast, the fish weirs of Baures are permanent earthen features covering more than 550 km². Small artificial ponds associated with the weirs are filled with fish and other aquatic foods when the floodwaters recede. These were probably used to store live fish. Through fisheries management, the native people of Baures transformed savannas and wetlands into a productive landscape capable of providing hundreds of tons of protein to sustain large populations.



Figure 11.9. A network of pre-Columbian fish weirs in the Bolivian Amazon. The brush covered fish weirs measure 1 m wide and 50 cm tall. Straight features at the top and bottom of the image are causeways and canals, and circular features are artificial fish ponds. Baures in 1999. (Clark Erickson)

Agroforestry

Countering the view of Amazonian forests as pristine and natural, historical ecologists show that these forests are, to a large degree, the cultural products of human activity (Balée 1989; Balée and Posey 1989; Denevan and Padoch 1988; Posey 2004). Amazonian people past and present practiced agroforestry: tree cultivation and forest management (Peters 2000).

Analysis of pollen, opal phytolith, and sediment from lakes document local and regional anthropogenic disturbances of Amazonia over thousands of years including burning, clearing, farming, and agroforestry (Piperno and Pearsall 1998; Mora 2002; Piperno et al. 2000). Much of what was originally misinterpreted as natural change due to climate fluctuations is now considered anthropogenic. Records show a steady increase of “weeds” and secondary forest species, many of which are economic species, and later domesticated crops that thrive in open conditions and heterogeneous mosaic of forest and savanna and intermediate states created by human disturbance. At the same time, the frequency of species characteristic of closed canopy forests decreases until the demographic collapse after 1491. Fire histories are also documented in association with the formation of the anthropogenic forest. Evidence of fruit and nut tree use and human disturbance is documented by 10,500 years ago in the Central Amazon (and see discussion of dates in the Colombian Amazon in Roosevelt 1996; Mora 2002; see discussion of evidence for domesticated crops at some sites in Amazonia in Piperno and Pearsall 1998; Piperno et al. 2000; see also Chapter 12 in this volume).

The long-term strategy of forest management was to cull non-economic species and replace them with economic species. Sometimes, this involves simple thinning, planting, transplanting, fertilizing, coppicing, and weeding of valued species to enhance their productivity and availability. Many wild plants are often found outside their natural range due

to transplanting, cultivation, and habitat improvements. In other cases, wild and domesticated trees are tended as orchards. Useful plants that in the distant past relied on natural forces now depend increasingly on humans for seed dispersal, survival, and reproduction.

Slash-and-burn agriculture is characterized by low labor inputs, limited productivity per land unit, and short period of cultivation followed by longer periods of fallow or rest. Historical ecologists point out that slash-and-burn fields are never truly abandoned and unproductive during fallow. In Amazonia, agriculture is combined with agroforestry. In the initial cutting and burning to clear a field or garden, certain economic species are left to thrive while unwanted species are removed. In addition to basic food crops, useful fruit and palms are often transplanted to the clearing. As fields fall out of cultivation because of weeds and forest regrowth, the plots continue to produce useful products, long after “abandonment”.

Anthropogenic forests are filled with fruit trees, an important component of agroforestry. Eighty native fruit trees were domesticated or semi-domesticated in Amazonia (Clement 2006). Fruit trees, originally requiring seed dispersing frugivores attracted to the juicy and starchy fruits, became increasingly dependent on humans through genetic domestication and landscape domestication for survival and reproduction. In addition, humans improved fruit tree availability, productivity, protein content, sweetness, and storability through genetic selection. Oligarchic forests, characterized by a single tree species, often a palm, provide mass quantities of protein and building materials, and food for the game animals. In the Bolivian Amazon, thousands of kilometers of the burití palm, the Amazonian tree of life, contributes protein and materials for buildings, basketry, weapons, and roofing. Forest islands of chocolate trees are agro-forestry resource legacies of the past inhabitants of the region (Erickson 2006).

Agroforestry and farming also attract game animals that eat the abundant crops, fruits, and nuts. Farmers often grow more food than necessary to attract game. As a result, “garden hunting” is a particularly efficient (Linares 1976). Many game animals of Amazonia would have a difficult time surviving without a cultural and historical landscape of human gardens, fields, orchards, and agroforestry. The biodiversity of animals can also be enhanced by domestication of landscape. In coastal Ecuador, Stahl (2000, 2006) reconstructs biodiversity and the character of the anthropogenic environment through the remains of diverse animals in garbage middens of 4,000-year old settlements. The majority of identified animals thrive in a disturbed mosaic environment with light gaps, edges, old gardens and field clearings.

Even hunters and gatherers contribute to anthropogenic forests. The nomadic Nukak of the Colombian Amazon change campsites 70 to 80 times a year (Politis 1996). When establishing a new location, a small number of trees are felled and hundreds of palm fronds are collected for construction of a simple lean-to structure. Wild fruits and nuts are collected and some end up discarded. After the camp is abandoned, palm seeds take root in the clearing and thrive. Repeated over hundreds of years, the selective cutting of trees for nomadic camps, creation of small light gaps or openings, and distribution of seeds can substantially change the forest composition to one rich in economic species of plants and animals.

While agroforestry focuses on management of certain economic species, studies show that overall biodiversity may be enhanced in anthropogenic forests (Peters 2000; Balée 1994, 2006). The Ibibate Mound Complex in the Bolivian Amazon is a well studied case of a biologically diverse anthropogenic forest (Erickson and Balée 2006). Surveys of forest growing on pre-Columbian mounds abandoned 400 years earlier and

non-mounds were compared showing a significantly higher biodiversity in forest on the mounds, in addition to non-local economic species. Economic studies show that anthropogenic forests are more valuable for sustainable collection of renewable resources than logging (Balick and Mendelsohn 1992).

CONCLUSIONS: LESSONS FROM THE PAST?

Western environmental history is characterized by humans, especially those living in farming and urban societies, who overexploit and degrade the environment. Some scholars now argue that environmental catastrophes are an ancient rather than recent historical phenomenon. Other scholars contrast the environmental failures of Western civilization to non-western societies practicing efficient, productive, and sustainable strategies. Another group declares this a myth and that all human activities are negative for the environment. Rather than assume that humans are either *Homo ecologicus* or *Homo devastans*, historical ecologists attempt to evaluate these debates through careful investigation of particular case studies at multiple scales of analysis.

Amazonian Dark Earths, agroforestry, raised field agriculture, transportation and communication networks, urban settlements, mounds, artificial forest islands, river cut-offs, water control, and fisheries management are clear examples of landscape creation, transformation and management by pre-Columbian native people in Amazonia (Figure 11.10). Through the domestication of landscape, native people shaped the landscape as they wanted it and made it work for them. What they transformed was often less productive and biologically diverse than what resulted. In other cases, human activities reduced biodiversity. Most landscapes, which are today appreciated for their high biodiversity, have evidence of human use and management, even if those landscapes are relatively unoccupied today. Environments with high biodiversity are a result of, rather than in spite of, long human disturbance of the environment.

My Bolivian informants state that the best hunting and farmland is on pre-Columbian earthworks deep in the forests (Figure 11.11). Recognized as having the highest biodiversity in



Figure 11.10. Precolumbian domesticated landscape of settlements, mounds, forest islands, raised fields, causeways, canals, and agroforestry. (Artwork by The Monkey Project)



Figure 11.11. Precolumbian raised fields under forest. When the fields were in use, the landscape was treeless. San Ignacio in 2006. (Clark Erickson)

Bolivia, the Tsimane Indigenous Territory is covered with raised fields, causeways, canals, and settlements under what is now continuous forest canopy (Erickson and Walker 2005). These cases of present day biodiversity, treasured by scholars and the public alike, were ironically created under conditions of intensive farming, urbanized settlement, and dense populations. Anthropologists have recently pointed out that regions of high biological diversity tend to map onto high cultural diversity (Maffi 2006). These findings contradict the Myth of the Pristine Environment that biodiversity should be associated with an absence of humans. To historical ecologists, this association makes sense.

Were these native practices sustainable? Sustainability usually refers to rational continuous harvest of a resource without destroying the capacity of that resource to reproduce. According to Janzen, sustainable development is “living off the interests rather than consuming the capital” (1997: 413). The longevity of settlements, agriculture, and cultural traditions and the dense populations supported in what are now considered biologically diverse environments are evidence of sustainability.

Are the past strategies of environmental management defined by historical ecology applicable to the modern world? Many goals of pre-Columbian native people, modern inhabitants of Amazonia, scientists, planners, and the general public coincide: the management of environmental resources for a comfortable life and sustainable future in what most consider a fragile ecosystem. Increasingly, the reservoir of existing biodiversity is found in humanized landscapes. The failure of traditional solutions such as fencing off nature and excluding native people highlights the need for strategies that embrace the co-existence of nature and humans. Environmental management informed by time-tested strategies for specific landscapes may be more appropriate than existing solutions. Because humans played a role in the creation of present day biodiversity, solutions will have to include people.

ADE as a means to mitigate global warming is an example of applied historical ecology. Low temperature biochar or charcoal, the key ingredient of ADE, and ammonium bicarbonate produced from urban wastes are the byproducts of biofuel production. Burial of biochar treated with ammonium bicarbonate is an excellent nitrogen based organic fertilizer *and* an ideal form of carbon sequestration (Marris 2006). Controlled burning, traditionally considered degrading to the environment, is being re-introduced as a management strategy in many biodiversity reserves. Once removed from their homelands in the establishment of parks, native people are now integral participants in the management of some ecological reserves and indigenous territories (Chapin 2004; Posey 2004). Many small farmers living along the Amazon River continue to practice sustainable strategies from the past within a modern urban context (Smith 1999).

Conservationists seek to protect what they advertise as pristine wilderness. Therefore, many conservationists regard as dangerous and detrimental to their fundraising the idea that humans created, transformed, and managed biodiversity (Chapin 2004). Native rights advocates worry that Amazonian people will be viewed as “bad” by Westerners in terms of environmental stewardship and lose claims and control of indigenous territories (Redford 1991; Chapin 2004; Conklin and Graham 1995). Others declare that historical ecologists who argue against the ideas of the Amazon as a counterfeit paradise fan the flames of tropical rainforest destruction by encouraging reckless development of already transformed landscapes (Meggers 2001).

Historical ecologists respond that ignoring the complex human history of environments in Amazonia would be unwise. A vast indigenous knowledge spanning hundreds of generations about the creation, transformation, and management of environments is physically embedded in the landscape, encoded in the distribution and availability of plant and

animal species, documented in historical and ethnographic accounts, and in some cases, still practiced by native Amazonians.

REFERENCES

- Abizaid, Christian, 2005, An anthropogenic meander cutoff along the Ucayali River, Peruvian Amazon. *The Geographical Review* 95 (1): 122–135.
- Alvard, Michael S., 1995, Intraspecific prey choice by Amazonian hunters. *Current Anthropology* 36: 789–818.
- Ashmore, Wendy and A. Bernard Knapp (eds.), 1999, *Archaeologies of Landscape: Contemporary Perspectives*. Blackwell, Malden, MA.
- Balée, William A., 1989, The culture of Amazonian forests. *Advances in Economic Botany* 7: 1–21.
- (ed.), 1998, *Advances in Historical Ecology*. Columbia University Press, New York.
- , 1994, *Footprints of the Forest: Ka'apor Ethnobotany – the Historical Ecology of Plant Utilization by an Amazonian People*. Columbia University Press, New York.
- , 2006, The research program of historical ecology. *Annual Review of Anthropology* 35: 1–24.
- and Clark Erickson (eds.), 2006a, *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*. Columbia University Press, New York.
- and Clark Erickson, 2006b, Time, complexity, and historical ecology. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark Erickson, pp. 1–20. Columbia University Press, New York.
- Balick, Michael and Robert Mendelsohn, 1992, Assessing the economic value of traditional medicines in the tropical rain forests. *Conservation Biology* 6 (1): 128–130.
- Beckerman, Stephen, 1979, The abundance of protein in Amazonia: a reply to Gross. *American Anthropologist* 81: 533–560.
- Blumler, Mark A., 1998, Biogeography of land-use impacts in the Near East. In *Nature's Geography: New Lessons for Conservation in Developing Countries*, edited by Karl Zimmerer and Kenneth Young, pp. 215–236. University of Wisconsin Press, Madison.
- Botkin, Daniel, 1990, *Discordant Harmonies: A New Ecology for the Twenty-First Century*. Oxford University Press, New York.
- Brookfield, Harold, 2001, *Exploring Agrodiversity*. Columbia University Press, New York.
- Carneiro, Robert, 1960, Slash and burn agriculture: a closer look at its implications for settlement patterns. In *Men and Cultures*, edited by Anthony Wallace, pp. 229–232. Philadelphia.
- CEAM, 2003, *Moxos: Una Limnocoltura*. Centre d'Estudis Amazonics, Barcelona.
- Chagnon, N. and R. Hames, 1979, Protein deficiency and tribal warfare in Amazonia: new data. *Science* 203: 910–913.
- Chapin, Mac, 2004, A challenge to conservationists. *World Watch* November–December pp. 17–31.
- Chernela, Janet, 1993, *The Wanano Indians of the Brazilian Amazon: A Sense of Space*. University of Texas Press, Austin.
- Clements, F. E., 1916, *Plant Succession: An Analysis of the Development of Vegetation*. Carnegie Institute of Washington, Washington, D.C.
- Connell, Joseph H., 1978, Diversity in tropical forests and coral reefs. *Science* 199: 1302–1310.
- Conklin, Beth A. and Laura Graham, 1995, The shifting middle ground: Amazonian Indians and eco-politics. *American Anthropologist* 97 (4): 695–710.
- Crumley, Carole L. (ed.), 1994, *Historical Ecology: Cultural Knowledge and Changing Landscapes*. School of American Research, Santa Fe.
- DeBoer, Warren R., Keith Kintigh, and Arthur Rostoker, 1996, Ceramic seriation and settlement reoccupation in lowland South America. *Latin American Antiquity* 7 (3): 263–278.
- Denevan, William M., 1966, *The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia*. University of California Press, Berkeley.
- , 1990, Prehistoric roads and causeways in lowland tropical America. In *Ancient Road Networks and Settlement Hierarchies in the New World*, edited by Charles Trombold, pp. 230–242. Cambridge University Press, Cambridge.
- , 1992, The pristine myth: the landscape of the Americas in 1492. *Annals of the Association of American Geographers* 82: 369–385.
- , 1996, A bluff model of riverine settlement in prehistoric Amazonia. *Annals of the Association of American Geographers* 86 (4): 654–681.

- _____, 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, Oxford.
- _____, and Christine Padoch (eds.), 1988, *Swidden-fallow Agroforestry in the Peruvian Amazon*. Advances in Economic Botany. Volume 5, New York Botanical Gardens, New York.
- Dirzo, Rodolfo and Peter H. Raven, 2003, Global state of biodiversity and loss. *Annual Review of Environment and Resources* 28: 137–167.
- Durán Coirolo, Alicia and Roberto Bracco Boksar (eds.), 2000, *La Arqueología de las Tierras Bajas*. Comisión Nacional de Arqueología, Ministerio de Educación y Cultura, Montevideo, Uruguay.
- Erickson, Clark L., 1995, Archaeological perspectives on ancient landscapes of the Llanos de Mojos in the Bolivian Amazon. In *Archaeology in the American Tropics: Current Analytical Methods and Applications*, edited by Peter W. Stahl, pp. 66–95. Cambridge University Press, Cambridge.
- _____, 2000a, Lomas de ocupación en los Llanos de Moxos. In *La Arqueología de las Tierras Bajas*, edited by Alicia Durán Coirolo and Roberto Bracco Boksar, pp. 207–226. Comisión Nacional de Arqueología, Ministerio de Educación y Cultura, Montevideo, Uruguay.
- _____, 2000b, An artificial landscape-scale fishery in the Bolivian Amazon. *Nature* 408: 190–193.
- _____, 2001, Pre-columbian roads of the Amazon. *Expedition* 43 (2): 21–30
- _____, 2002, *Large Moated Settlements: A Late Pre-Columbian Phenomenon in the Amazon*. Paper presented at the 2nd Annual Meeting of The Society for the Anthropology of Lowland South America (SALSA). St. Johns College, Annapolis, Maryland.
- _____, 2003, Historical ecology and future explorations. In *Amazonian Dark Earths: Origin, Properties, Management*, edited by Johannes Lehmann, Dirse C. Kern, Bruno Glaser, and William I. Woods, pp. 455–500. Kluwer, Dordrecht.
- _____, 2006, The domesticated landscapes of the Bolivian Amazon. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark Erickson, pp. 235–278. Columbia University Press, New York.
- _____, in press, Agency, roads, and the landscapes of everyday life in the Bolivian Amazon. In *Landscapes of Movement: The Anthropology of Roads, Paths, and Trails*, edited by James Snead, Clark Erickson, and Andy Darling, University of Pennsylvania Museum of Archaeology and Anthropology Press, Philadelphia.
- _____, and William Balée, 2006, The historical ecology of a complex landscape in Bolivia. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark Erickson, pp. 187–234. Columbia University Press, New York.
- _____, and John H. Walker, in press, Pre-columbian roads as landscape capital. In *Landscapes of Movement: The Anthropology of Roads, Paths, and Trails*, edited by James Snead, Clark Erickson, and Andy Darling, University of Pennsylvania Museum of Archaeology and Anthropology Press, Philadelphia.
- Glaser, Bruno and William Woods (eds.), 2004, *Explorations in Amazonian Dark Earths in Time and Space*. Springer-Verlag, Heidelberg.
- Goulding, Michael, Ronaldo Barthem and Efreim Ferreira, 2003, *The Smithsonian Atlas of the Amazon*. Smithsonian Institution Press, Washington D.C.
- Gragson, Ted L., 1992, The use of palms by the Pume Indians of Southwestern Venezuela. *Principes* 36: 133–142.
- Gross, Daniel, 1975, Protein capture and cultural development in the Amazon Basin. *American Anthropologist* 77 (3): 526–549.
- Hayashida, Frances, 2005, Archaeology, ecological history, and conservation. *Annual Review of Anthropology* 34: 43–65.
- Hecht, Suzanna, 2003, Indigenous soil management and the creation of Amazonian Dark Earths: implications of Kayapó practices. In *Amazonian Dark Earths: Origin, Properties, Management*, edited by Johannes Lehmann, Dirse C. Kern, Bruno Glaser, and William I. Woods, pp. 355–372. Kluwer Academic Publishers, Netherlands.
- Heckenberger, Michael J., 1998, Manioc agriculture and sedentism in Amazonia: the Upper Xingu example. *Antiquity* 72 (277): 633–648.
- _____, 2005, *The Ecology of Power: Culture, Place, and Personhood in the Southern Amazon A.D. 1000–2000*. Routledge, New York.
- _____, Afukaka Kuikuro, Urissapá Tabata Kuikuro, J. Christian Russell, Morgan Schmidt, Carlos Fausto, and Bruna Franchetto, 2003, Amazonia 1492: pristine forest or cultural parkland? *Science* 301: 1710–1714
- Hiraoka, Mario, 1985, Floodplain farming in the Peruvian Amazon. *Geographical Review of Japan*. 58 (Ser. B): 1: 1–23.

- Iriarte, Jose, Irene Holst, Oscar Marozzi, Claudia Listopad, Eduardo Alonso, Andrés Rinderknecht and Juan Montaña, 2004, Evidence for cultivar adoption and emerging complexity during the mid-Holocene in the La Plata basin. *Nature* 432: 614–617.
- Janzen, Daniel H., 1997, Wildland biodiversity management in the tropics. In *Biodiversity II: Understanding and Protecting our Biological Resources*, edited by Marjorie Reaka-Kudla, Don Wilson, and Edward O. Wilson, pp. 411–431. Joseph Henry Press, Washington D.C.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, New York.
- , 1973, The antiquity and importance of long-distance trade relationships in the moist tropics of pre-Columbian South America. *World Archaeology* 5 (2): 170–86.
- , 1974, The moist tropics, the arid lands, and the appearance of great art styles in the New World. *The Museum of Texas Tech University*, Special Publication No. 7, pp. 115–158. Lubbock.
- , 1987, The introduction of maize in prehistoric eastern North America: the view from Amazonia and the Santa Elena Peninsula. In *Emergent Horticultural Economies of the Eastern Woodlands*, edited by William F. Keegan, pp. 345–371. Southern Illinois University, Center for Archaeological Investigations, Occasional Paper 7, Carbondale.
- , A. Gebhart-Sayer, and Ann Mester, 1985, The roots of the Shipibo art style: three waves on Imiriacocho or there were Incas before the Incas. *Journal of Latin American Lore* 11 (1): 31–119.
- Langstroth, Robert, 1996, Forest Islands in an Amazonian savanna of Northeastern-Bolivia. Ph.D. dissertation. Department of Geography, University of Wisconsin, Madison.
- Lee, Kenneth, 1995, Apuntes sobre las Obras Hidráulicas Prehispánicas de las Llanuras de Moxos: Una Opción Ecológica Inédita. Unpublished manuscript. Trinidad, Bolivia.
- Lehmann, Johannes, Dirse C. Kern, Bruno Glaser, and William I. Woods (eds.), 2003, *Amazonian Dark Earths: Origin, Properties, Management*. Kluwer, Dordrecht.
- Linares, Olga, 1976, “Garden hunting” in the American tropics. *Human Ecology* 4: 331–349.
- Lowie, Robert, 1948, The tropical forest: An Introduction. In *Handbook of South American Indians Vol. 3: The Tropical Forest Tribes*, edited by Julian Steward, pp. 1–56. Smithsonian Institution Bureau of American Ethnology, Bulletin No. 143. Washington, D.C.
- Maffi, Luisa, 2005, Linguistic, cultural, and biological diversity. *Annual Review of Anthropology* 29: 599–617.
- Marris, Emma, 2006, Black is the new green. *Nature* 442: 624–626.
- Meggors, Betty J., 1954, Environmental limitations on the development of culture. *American Anthropologist* 56: 801–24.
- , 1971, *Amazonia: Man and Culture in a Counterfeit Paradise*. Aldine, Chicago.
- , 1979, Climatic oscillation as a factor in the prehistory of Amazonia. *American Antiquity* 44: 252–266.
- , 1995, Amazonia on the eve of European contact: ethnohistorical, ecological, and anthropological perspectives. *Revista de Arqueología Americana* 8: 91–115.
- , 2001, The continuing quest for El Dorado: round two. *Latin American Antiquity* 12: 304–325.
- Mora, Santiago, 2003, *Early Inhabitants of the Amazonian Tropical Rain Forest: A Study of Humans and Environmental Dynamics*. University of Pittsburgh Latin American Archaeology Reports, No. 3, Pittsburgh.
- Moran, Emilio F., 1982, *Human Adaptability: An Introduction to Ecological Anthropology*. Westview Press, Boulder.
- , 1993, *Through Amazonian Eyes: The Human Ecology of Amazonian Populations*. University of Iowa Press, Iowa City.
- Neves, Eduardo G. and James B. Petersen, 2006, Political economy and pre-columbian landscape transformation in Central Amazonia. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark L. Erickson, pp. 279–310. Columbia University Press, New York.
- Nimuendajú, Curt, 1952, The Tapajo. *Kroeber Anthropological Society Papers*. 6:1–25.
- Nordenskiöld, Erland, 1913, Urnengraber und mounds im Bolivianischen flachlande. *Baessler Archiv* 3: 205–255. Berlin y Leipzig.
- , 1916, Die anpassung der Indianer an die verhältnisse in den überschwemmungsgebieten in Südamerika. *Ymer* 36: 138–155. Stockholm.
- Oliveira, Paulo S. and Robert J. Marquis (eds.), 2002, *The Cerrados of Brazil: Ecology and Natural History of a Neotropical Savanna*. Columbia University Press, New York.
- Pärssinen, Martti, Alceu Ranzi, Sanna Saunaluoma, and Ari Siiriäinen, 2003, Geometrically patterned ancient earthworks in the Rio Blanco Region of Acre, Brazil: new evidence of ancient chiefdom formations in Amazonian interfluvial terra firme environments. In *Western Amazonia-Amazônia Ocidental: Multidisciplinary Studies on Ancient Expansionistic Movements, Fortifications, and Sedentary Life*, edited by Martti

- Pärssinen and Antti Korpisaari, pp. 135–172. Helsinki: Renvall Institute Publications No. 14, Renvall Institute for Area and Cultural Studies, University of Helsinki.
- Peters, Charles, 2000, Pre-Columbian silviculture and indigenous management of neotropical forests. In *Imperfect Balance: Landscape Transformations in the Pre-Columbian Americas*, edited by David Lentz, pp. 203–223. Columbia University Press, New York.
- Pinto Parada, Rodolfo, 1987, *Pueblo de Leyenda*. Tiempo del Bolivia, Trinidad.
- Piperno, Dolores R. and Deborah M. Pearsall, 1998. *The Origins of Agriculture in the Lowland Neotropics*. Academic Press, San Diego.
- , Anthony J. Ranere, Irene Holst, and Patricia Hansell, 2000, Starch grains reveal early root crop horticulture in the Panamanian tropical forest. *Nature* 407: 894–897.
- Politis, Gustavo, 1996, Moving to produce: Nukak mobility and settlement patterns in Amazonia. *World Archaeology* 27: 492–511.
- Rostain, Stéphen, 1999, Secuencia arqueológica en montículos del valle del Upano en la Amazonia ecuatoriana. *Bulletin de l'Institut Français de Études Andines* 28 (1): 53–89.
- Posey, Darrell A., 2004, *Indigenous Knowledge and Ethics: A Darrell Posey Reader*, edited by Kristina Plenderleith. Routledge, New York.
- and William Balée (eds.), 1989, *Resource Management in Amazonia: Indigenous and Folk Strategies*. New York Botanical Garden, Bronx, NY.
- Pyne, Stephen J., 1998, Forged in fire: history, land, and anthropogenic fire. In *Advances in Historical Ecology*, edited by William Balée, pp. 62–103. Columbia University Press, New York.
- Raffles, Hugh and Antoinette WinklerPrins, 2003, Further reflections on Amazonian environmental history: transformations of rivers and streams. *Latin American Research Review* 38 (3): 165–218.
- Ranzi, Alceu and Rodrigo Aguiar, 2004, *Geoglifos da Amazônia: Perspectiva Aérea*. Faculdades Energia, Florianópolis.
- Redford, Kent H., 1991, The ecologically noble savage. *Cultural Survival Quarterly* 15 (1): 46–48.
- Redman, Charles, 1999, *Human Impact on Ancient Environments*. University of Arizona Press, Tucson.
- Roosevelt, Anna C., 1991, *Moundbuilders of the Amazon: Geophysical Archaeology on Marajo Island, Brazil*. Academic Press, New York.
- , 1999, The development of prehistoric complex societies: Amazonia, a tropical forest. In *Complex Politics in the Ancient Tropical World*, edited by Elisabeth A. Bacus and Lisa J. Lucero, pp. 13–34. Archeological Papers of the American Anthropological Association, Number 9, Arlington, VA.
- , M. Lima da Costa, C. Lopes Machado, M. Michab, N. Mercier, H. Valladas, J. Feathers, W. Barnett, M. Imazio da Silveira, A. Henderson, J. Sliva, B. Chernoff, D. S. Reese, J. A. Holman, N. Toth, and K. Schick, 1996, Paleoindian cave dwellers in the Amazon: the peopling of the Americas. *Science* 272: 373–384.
- Saavedra, Oscar, 2004, El sistema agrícola prehispánico de camellones en la Amazonia boliviana. In *Agricultura Ancestral. Camellones y Albarradas: Contexto Social, Uso, y Retos del Pasado y del Presente*, edited by Francisco Valdez, pp. 295–314. Editorial Abya-aylla, Quito.
- Sanford, R. L., J. Saldarriaga, K. Clark, C. Uhl, and R. Herrera, 1985, Amazon rainforest fires. *Science* 227: 53–55.
- Smith, Nigel J. H., 1980, Anthrosols and human carrying capacity in Amazonia. *Annals of the Association of American Geographers* 70 (4): 553–566.
- , 1999, *The Amazon River Forest: A Natural History of Plants, Animals and People*. Oxford University Press, New York.
- Stab, Sabina and Julio Arce, 2000, Pre-hispanic raised-field cultivation as an alternative to slash-and burn agriculture in the Bolivian Amazon: agroecological evaluation of field experiments. In *Biodiversidad, conservación y manejo en la región de la Reserva de la Biosfera Estación Biológica del Beni, Bolivia: Biodiversity, conservation and management in the region of the Beni Biological Station Biosphere Reserve, Bolivia*, edited by Olga Herrera-MacBryde, Francisco Dallmeier, Bruce MacBryde, James A. Comiskey, and Carmen Miranda, pp. 317–327. Smithsonian Institution, SI/MAB Biodiversity Program, Washington, DC.
- Stahl, Peter W., 1991, Arid landscapes and environmental transformations in ancient southwestern Ecuador. *World Archaeology* 22 (3): 346–359.
- , 1996, Holocene biodiversity: an archaeological perspective from the Americas. *Annual Review of Anthropology* 25: 105–126.
- , 2000, Archaeofaunal accumulation, fragmented forests, and anthropogenic landscape mosaics in the tropical lowlands of prehispanic Ecuador. *Latin American Antiquity* 11 (3): 241–257.
- , 2006, Microvertebrate synecology and anthropogenic footprints in the forested neotropics. In *Time and Complexity in Historical Ecology: Studies from the Neotropical Lowlands*, edited by William Balée and Clark Erickson, pp. 127–149. Columbia University Press, New York.

- Steward, Julian H. (ed.), 1948, *Handbook of South American Indians, Vol. 3: The Tropical Forest Tribes*. Smithsonian Institution Bureau of American Ethnology, Bulletin No. 143. Washington, D.C.
- Sutton, Mark O. and E. N. Anderson, 2004, *Introduction to Cultural Ecology*. Altamira, Walnut Creek, CA.
- Valdez, Francisco (ed.), 2006, *Agricultura Ancestral. Camellones y Albarradas: Contexto Social, Uso, y Retos del Pasado y del Presente*. Editorial Abya-Yala, Quito.
- Walker, John H., 2004, *Agricultural Change in the Bolivian Amazon*. Latin American Archaeology Reports, University of Pittsburgh, Pittsburgh.
- Whitten, Richard, 1979, Comments on the theory of Holocene refugia in the culture history of Amazonia. *American Antiquity* 44: 238–251.
- Woods, W. and J. M. McCann, 1999, The anthropogenic origin and persistence of Amazonian Dark Earths. *Yearbook Conference of Latin Americanist Geographers* 25: 7–14.
- Wust, Irmild and Christiana Barreto, 1999, The ring villages of central Brazil: a challenge for Amazonian archaeology. *Latin American Antiquity* 10 (1): 3–23.
- Zimmerer, Karl and Kenneth Young (eds.), 1998, *Nature's Geography: New Lessons for Conservation in Developing Countries*. University of Wisconsin Press, Madison.

The Archaeology of Agriculture in Ancient Amazonia

JOSÉ R. OLIVER

INTRODUCTION

The productivity of ancient Amazonian food procurement and production economies has received considerable attention for many years by archaeologists interested in the degree of sociopolitical and cultural complexity that can be sustained in the diverse Amazonian habitats (Figure 12.1). Theories on agricultural development also underpin arguments about the nature and implications of large-scale population movements—disaporas—attached to major proto-linguistic stocks, such as Arawakan-Maipuran, Tupian-Guaraní, and Cariban, among others, that are in turn linked to the spread of major archaeological traditions, such as the Amazonian Polychrome or the “Barrancoid”/Incised Rim traditions. The debates surrounding the issues of when and where new subsistence products and technologies show up in the archaeological record, and how these spread and changed has been a major stimulus in researching the origins and development of agriculture in Amazonia.

Agriculture is hailed as *the* underlying economic foundation of complex societies in the New World. All pre-Columbian civilizations of the Americas depended upon the development of agriculture, and this is as true for Amazonia as it is for the rest of the Americas. Nearly thirty years ago Donald W. Lathrap (1962, 1977; see Piperno and Pearsall 1998), building on Carl Sauer’s (1952) work, strenuously argued that the rise of early agrarian-based Andean formative civilizations could hardly be understood without the significant contribution of food crops first ennobled and cultivated in the greater Amazon basin. And yet, age-old questions still remain and are only partially validated by hard archaeobotanical evidence today. When, how and in what ways did humans become reliant on agriculture in Amazonia? What processes and behaviors can account for the diversity of cultivated landscapes of past, whose scars are still observable in the present-day landscape of Amazonia? What forces and circumstances led to the shift (transition) from food procurement to agriculture-based food

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

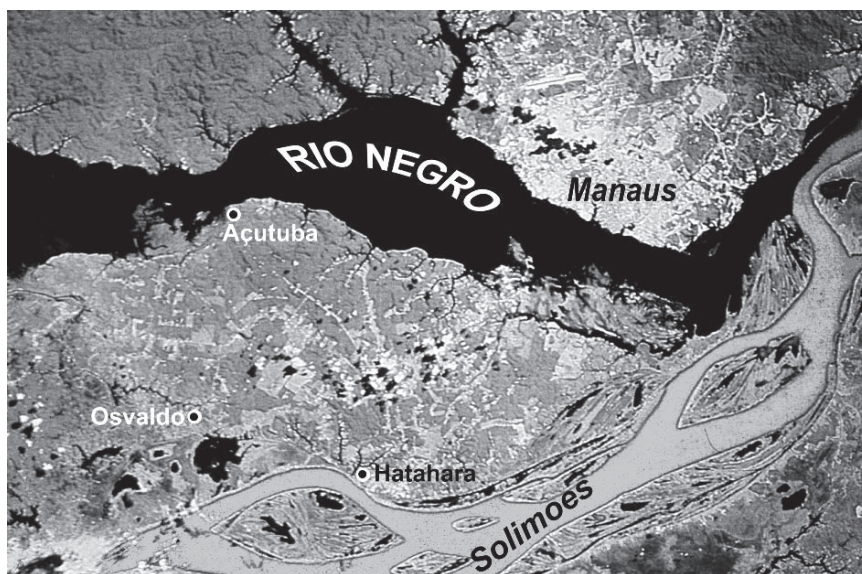


Figure 12.1. Satellite view of confluence of the Solimões and Negro rivers at Manaus, central Amazon area. The várzea (floodplain) and igapó (flooded forest) of the whitewater Solimões River contain higher nutrients than the blackwater Negro River, offering different potentials for agricultural and fishing productivity.

production, when and how did the many different kinds of agricultural systems develop, and what were the consequences for ancient Amazonian pre-Contact societies?

This chapter focuses on some on selected examples of archaeological evidence that have shed light on the rise of agriculture in Amazonia. Extensive, detailed exegesis on this topic can be consulted in the works of Piperno and Pearsall (1998), Denevan (2001), and Harris (1989, 1991).

PERSPECTIVES ON AMAZONIAN AGRICULTURE

The long-standing questions raised above have been approached from several theoretical perspectives and interdisciplinary methodologies ever since Spinden (1916) proposed the seminal unitary theory of a Neolithic Revolution, centered in Nuclear America. Methodological advances and novel theoretical perspectives, primarily emerging from historical ecology (Balée 1989, 1998; Erickson 2003, Chapter 11 in this volume) in the last twenty-five to thirty years, coupled with an ever widening coverage of sample/data points in the huge expanse of the South American tropical lowlands, have added new interpretative dimensions to our current understanding of the complex synchronic and diachronic processes leading from food and plant procurement to agricultural food production systems in Amazonia.

Also, in recent decades, knowledge has substantially advanced on Amazonia's complex ecology, environmental diversity, its potential for food procurement and production, and on its possibilities and limitations for sustaining and nourishing densely populated, socio-politically complex societies (summarized in Oliver 2001). The so-called "Standard Model" initiated by Steward in 1948 (see Steward and Faron 1959) and further developed by Meggers (1954, 1971, 1996) through her theory of Environmental Determinism has been severely

criticized (Viveiros de Castro 1998; Neves 1998, 1999). Meggers' (1996, 2001) view of Amazonia's cultural evolution and history as a "counterfeit paradise," framed in terms of soil potential and sharp disparities in animal/protein concentration (*várzea* vs. *terra firme*), today is no longer accepted by the great majority of scholars (Piperno and Pearsall 1998; Denevan 2001). A good example of this is Heckenberger's (2005) very recent total deconstruction of the archetypal "autonomous village" and "tribal" societies of the upper Xingú. The specifics on the failures of the Standard Model have been so abundantly discussed elsewhere that there is little gained by repeating them here. Stahl (2002) has produced what I believe to be the best synthetic review of these critiques, and Erickson (2003) has also succinctly reiterated these reviews from a historical ecological perspective, albeit specifically addressing the significance of the anthropogenic *terra preta* or Amazonian Dark Earths (hereafter, ADE).

As the evidence for the rise of agriculture is examined in the subsequent sections, some knowledge of the theories and models proposed by Lathrap (1970, 1977; see Oliver 1991) and by Denevan (1996, 2001) will significantly help readers. Lathrap's (1977) Neolithic Revolution model rests on the evolutionary process of adaptive radiation (Lathrap 1976) and upon the principle of historical contingency (see Oliver 1991), whereas Denevan (2001) focuses on the long-term cultural history of anthropogenic (primarily agricultural) landscapes and their implications in terms of paleodemography, settlement pattern and social organizational trends.

Here I wish to reiterate just three key points made by these scholars. First, Lathrap (et al. 1985: 54) concluded that slash-and-burn agriculture (Figure 12.2) was largely



Figure 12.2. Recently slashed and burned Yabarana (Carib) swidden field in the upper Orinoco. Note the individual carrying an iron hoe, a metal tool that encourages clearing new forested patches (photo by José M. Cuxent 1959).

“a secondary, derived and late phenomenon within the Amazon Basin,” while Denevan (1992, 2001: 115–123) reinforced this view by noting that the clearing of new forests for cultivation, prior to the introduction of steel axes and machetes by Europeans, was not likely to have been as widespread in the past as it is today. Second, Lathrap (1970: 44) and Denevan (1996: 654–81) argued that the best piece of “real estate” for settlement location capable of sustaining dense populations in Amazonia is to be found on stretches of stable river bluffs (Figure 12.3). Settlements on river bluffs would have access to the diverse floodplain/river biotopes and to terra firme forests on older alluvial soils and, as a bonus,



Figure 12.3. View of a modern agricultural field on a terra firme bluff along the Solimões River, near the confluence with Negro River. (photo by Eduardo Neves)

avoid the problems of periodic high floods (Figure 12.4). Third, Lathrap (1970, 1977; Lathrap et al. 1985) tended to view all of the bluff-várzea as a continuous zone having more or less the same potential for intensive agriculture and high population density, with terra firme inter-fluvial forest/savanna areas having low population density. In contrast, Denevan (1996) proposed that pockets or patches of intensity and large tracts of low intensity developed in both várzea and the diverse habitats of terra firme.

Denevan (2001: 127–130, 1996) attributes such non-continuously distributed patchworks of intense agricultural/settlement developments to one or several of the following factors: the complementary rich resources of várzea-bluff locations (Figure 12.4); the uneven access to river channels and floodplains; the inefficiency of stone-axes in constantly creating new agricultural fields from mature forests; and the patchwork distribution and development of rich black and brown (ADE) soils from previous, sustained human disturbances (Figure 12.5).

The distribution of ADE is no longer limited to the bluffs adjacent to major white and black water rivers as once thought, but also found as patches of diverse sizes and shapes in savanna scrublands and in other terra firme habitats drained by clear water rivers (Lehman et al. 2004; Erickson 2003; Glasser and Woods 2004) (Figure 12.5). Thus far, there is a near-consensus that the anthropogenic black-soils were formed by long-term or persistent human occupation and not the result of farming or forest fires (whether natural or slash-and-burn; for a full review see Erickson 2003). When, where and how many of these ADE patches were first utilized as cultivation plots and to which archaeological traditions they are associated, is still unknown. It is clear that ADE patches are currently under cultivation by modern Amazonian societies; the Kayapó call such ADE plots *apêtê* and Xiguanos name them *egepe*, while Brazilian farmers call them *terra preta do índio*. The Hatahara estate, located on a bluff overlooking the Solimões River, for example, runs an orchard/plantation of papaya (*Carica papaya*) trees on ADE (Petersen et al. 2001; Neves et al. 2003). Neves (personal communication, 2000) also reports for the same area, small-scale mining and bagging of ADE to sell as top-class topsoil in the market.

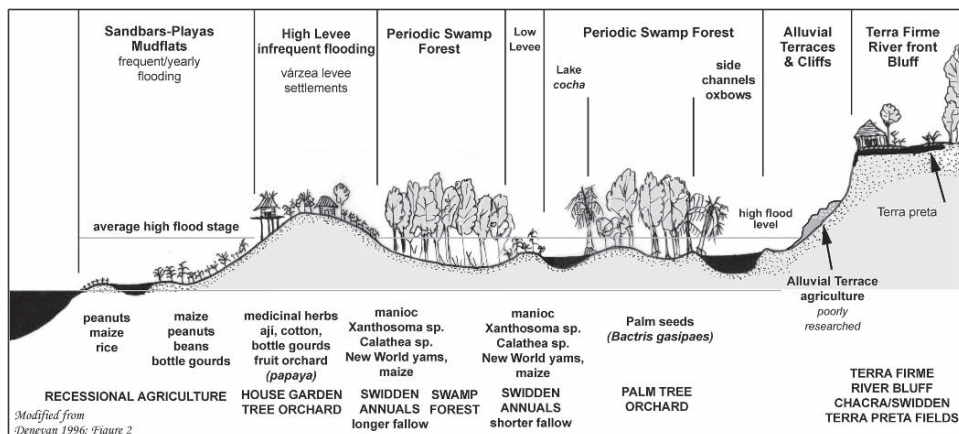


Figure 12.4. Idealized cross-section of the different biotopes between main whitewater river channels, várzea and terra firme bluff. The simultaneous and/or sequential agricultural exploitation of these diverse niches can sustain denser populations, with long-term residential stability, and which favoring bluff areas for settlement location. (adapted from Denevan 1996 by José Oliver)



Figure 12.5. Terra preta or Amazonian Dark Earths (ADE) is an anthropogenic soil formed by intense human occupation. These fertile soils can then be used as cultivation fields. Açutuba site, Negro-Solimões region. (photo by Eduardo Neves)

THEORETICAL APPROACHES

Ever since Darwin, history and evolution—the twin theoretical “engines” for tracking change—continue their uneasy, if not (falsely) antagonistic, relationship in framing and addressing the questions posed in this paper’s Introduction. On the one hand, evolutionary

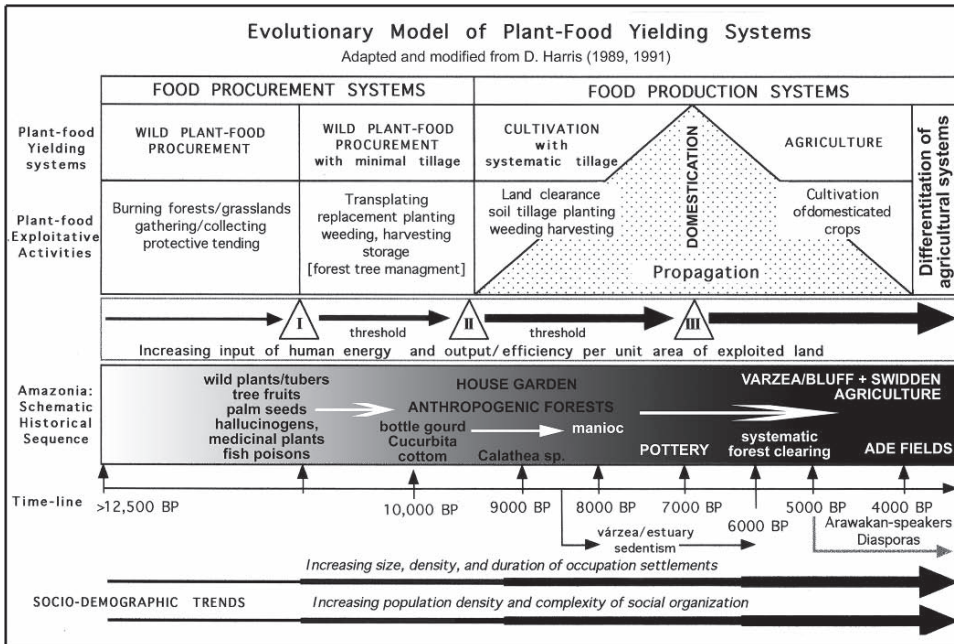


Figure 12.6. An evolutionary model of plant food-yielding systems and their corresponding exploitative activities, as proposed by David Harris (1989, 1991). The triangles with Roman numerals indicate key thresholds (transitions) of increased efficiency in the output of food procurement and production. A schematic historical sequence for Amazonia is added to the model, marking the appearance and intensification (increasingly darker shade) of key food products and agricultural landscapes along a time line. The two arrows at the bottom track the socio-demographic trends that are linked to increased food production efficiency. (adapted from D. Harris 1989, 1991 by José Oliver)

ecological models grounded on optimal foraging theory have been invoked to explain the shift from food procurement to food production strategies that ensued in the Neotropics during the critical transition from late Pleistocene to early Holocene climatic conditions (Figure 12.6). On the other hand, explanatory models based on historical contingency are invoked by historical ecologists to address the same kind of questions. While both allow for human agency and intentionality (see Lathrap 1984; Piperno and Pearsall 1998:17), their premises are certainly different. The former focuses on co-evolutionary processes in nature, within which human communities are a part of the biotic system, whereas the latter focuses on the role of human history, rather than nature, in creating and remodeling the landscape.

Optimal Foraging Evolutionary Theory

As discussed by Piperno and Pearsall (1998:16–18, 324–327) optimal foraging theory is articulated through the “Broad Spectrum Diet Revolution” model and addresses the question of why it would be advantageous to shift from a proven foraging system to the untested, thus risky practice of agricultural production. Succinctly, the model proposes that food plant resources forming the diet of a foraging group are not those most abundant in a given area, but those that are most efficient to procure in terms of effort expended for caloric return. As the abundance of these high-ranked plant resources in a given area declined

at the close of the Pleistocene, efficient foraging would have required investing less time in searching for high-ranked plants and more time searching and handling a wider range of lower-ranked resources. As high-ranking plant resources declined, *efficient* foragers would choose a broader, more diversified diet because they would obtain a higher return rate than could be achieved by searching for the depleted, dispersed high-ranked resources. A reduction in search time would allow foragers to invest time in food processing and storage, adding to the nutritional value and use-life of the food resources. The increased diet breadth and the decreased search time lead to a smaller foraging range and thus to increased residential stability and sedentism (Piperno and Pearsall 1998:17–8), the context that promoted the development of house gardens.

Such changes in diet-breadth may well result in socio-demographic changes, depending on the nature and characteristics of the food resources entering the diet. But it is important not to view changes deterministically. If the development of sedentism, domestication and agriculture were inevitable, modern foragers like the Nukak (Politis 2001; Politis and Saunders 2002) would simply not exist (Figure 12.7). Nor would formerly sedentary agricultural groups, like the Gorotire Kayapó, have reverted to “nomadic agriculture” in the early twentieth century. One possible direction a given group can take is, of course, toward sedentism, house gardening and, eventually, agriculture. As the opportunity arises to concentrate an increasing number of high-ranked food plants within the home area, while still



Figure 12.7. A cultivated field created by the disturbances of a previous Nukak (Makú) encampment. This field includes root crops (manioc plus others unidentified) and Seje palms. Once created, the Nukak foragers will not reuse this locus as a camp site so as not to interfere with plant growth. The unusually high density distribution of palms in the Guaviare territory in Amazonian Colombia is largely the product of foraging and itinerant gardening activities going back to at least 9000 BP. (photo by Gustavo Politis)

foraging for a broad suite of low-ranked food sources, it would be expected that at some point in time the optimal efficiency in terms of effort invested will shift to bringing high-yield plants under increasing human dependency and control for their reproduction.

Historical Ecology: Humans and Their Landscapes

In the last twenty-five years or so, there has been a growing disenchantment with the explanations arising from strictly neo-Darwinian (co-) evolutionary approaches, such as optimal foraging theory, to the question of origins and development of agriculture (Balée 1998; Erickson 2003; Politis and Saunders 2002). Historical ecology has emerged as a challenge to the dominant theoretical perspectives of the 1980s emanating from cultural and human ecology, ecological anthropology, sociobiology and evolutionary biology. The basic premise is that Native Amazonians did not adapt to nature, but rather created the world that they wanted through human creativity, technology and engineering, and cultural institutions (Balée 1998; Denevan 2001). “The focus is on human history rather natural history of the environment contextualized within a historical and cultural tradition” (Erickson 2004: 456).

Balée (1994), one of its key exponents, presented a model of “agricultural regression” where the patterns of food quest by modern hunter-gatherers and farmers occur in landscapes that are the result of, and were created by, hundreds of generations of previous occupants. Present-day native societies, hence, do not adapt to nature or a given natural environment. Instead, as Erickson (2003:456) noted, they are “exploiting the past, complex human history of the landscape capital created by their ancestors.” Native Amazonians are therefore not passive entities adapting to given natural environments, but are instead proactive, rational actors, in their interaction (ecology) with nature and in promoting change and continuity through culture. In short, the goal of historical ecology is to understand the long-term history of human behaviors in creating the diverse landscapes that are known today (Erickson 2003: 459).

In assessing breadth-diet evolutionary theory, I suspect that historical ecologists would be weary of how food procurement/production efficiency is measured, in contrast to how it would be valued by Native Amazonians. They would likely insist that the resulting food-yielding (anthropogenic) landscapes cannot merely be reduced to those behaviors that select for food procurement *efficiency* in terms of *effort expended for calorific return*. Other value judgments that depend on native perceptions of the cosmos are likely to enter in the decisions that produce particular kinds of anthropogenic landscapes and make “efficient” use of specific suites of food-yielding resources (Århem 1993; Reichel-Dolmatoff 1996). Thus, for example, the Nukak foragers of the Guaviare observe animal taboos and various gender-based food restrictions that preclude their inclusion into their diet, even when selecting for these would be the optimal efficient thing to do, and indeed would enhance the breadth of diet (Politis and Saunders 2002). Food prohibitions and other dietary restrictions are culturally instituted (valued); their efficiency has everything to do with the emic understanding (beliefs, ideology) of body-and-soul health and very little to do with calorific returns.

For a long time it was believed that agriculture was invented rather quickly, leading to the domestication of plants and, in due course, to settled life and civilization (see Harris 1972, 1989, 1991). This idea no longer holds for anywhere in the world, Amazonia included. Rather, agriculture *followed* domestication and settled life. Domestication is the long-term result of predator-prey (human-plant/animal) relationships where both populations stand to benefit, while agriculture, in its broadest sense refers to human behaviors that create a new kind of ecological succession (an agroecology), and hence a particular kind of landscape,

where the life-cycle of the cultivars are under human control (Piperno and Pearsall 1998: 17–18), and where food-yielding landscapes are created by human action. But before food production based on domesticated crops (agriculture) emerged, there was a long and protracted period of mutually beneficial human-plant interactions (Rindos 1980, 1984, 1989; Lathrap 1984; Pearsall 1995: 159–160). In procuring food and other plant resources by foraging, human beings began to alter the landscape well before any systematic cultivation took place, while creating the necessary opportunities for sedentism and domestication to develop. Such opportunities might arise from activities such as clearing land around campsites or setting fires in grasslands to hunt animals.

Over ten millennia of human activities in the quest for food in Amazonia have left a vast array of signatures on and “inside” the landscape, some of which are still legible and decodable today and many others that have been distorted, rearranged and even erased by the passage of time. The geometric growth of human activities—intentional and unintentional—over ten-thousand years, and the different, variable scales of impact on the landscape, have blurred and altered the boundaries between what is natural and cultural in Amazonia. Perhaps this conceptual, analytical dichotomy made sense only in that fleeting moment, when a human group first stepped into an environment, a niche, a landscape and ecology devoid of humanity.

THE ARCHAEOLOGICAL EVIDENCE OF THE LATE PLEISTOCENE-EARLY HOLOCENE

The traditional view of the “First South Americans” as exclusively favoring a narrow diet spectrum specialized in big game hunting has been demonstrated not to apply everywhere in South America, and most particularly not in the moist forest regions of Amazonia (Roosevelt (1999: 312–15; 1998: 190; Dillehay et al. 1996: 145–204). Until the 1980s, next to nothing was known about when humans first entered the Amazon basin, much less about their subsistence strategies and the effects of their activities in reshaping the “natural” environment. The following sections examine in some detail the evidence for the earliest food procurement and strategies in three specific regions within Amazonia (Figure 12.8). These case studies illustrate the kinds of processes at work that gradually led to agricultural-based societies.

The Caverna Da Pedra Pintada Foragers

Some of the earliest evidence for Late Pleistocene to Early Holocene hunting and gathering adaptations to the tropical rainforest habitat has emerged from archaeological excavations at Caverna da Pedra Pintada, near Monte Alégre (Roosevelt et al. 1996: 373–84; Roosevelt 1998: 195–197; Roosevelt et al. 2002: 190–202) (Figures 12.9, 12.12). Fifty-six radiocarbon dates ranging between 11,700–9,880 BP are associated with early hunter-gatherer groups who, in the course of repeated visits, left flaked stone tools, such as knives, graters, scrapers and stemmed projectile points (Figure 12.10). An elegant pictographic rock art began with the earliest occupants of the cave (Pereira 2001: 215; Roosevelt et al. 2002: 194). Plant and animal remains at this site unequivocally demonstrate an exploitation of rainforest trees, palm trees, river mussels, fish and turtles and, to a lesser extent, terrestrial mammals, all of which point to habitats that are similar, though probably not identical, to the modern tropical rainforest, *várzea* and *igapó* flooded forest, in addition to the river’s aquatic resources.

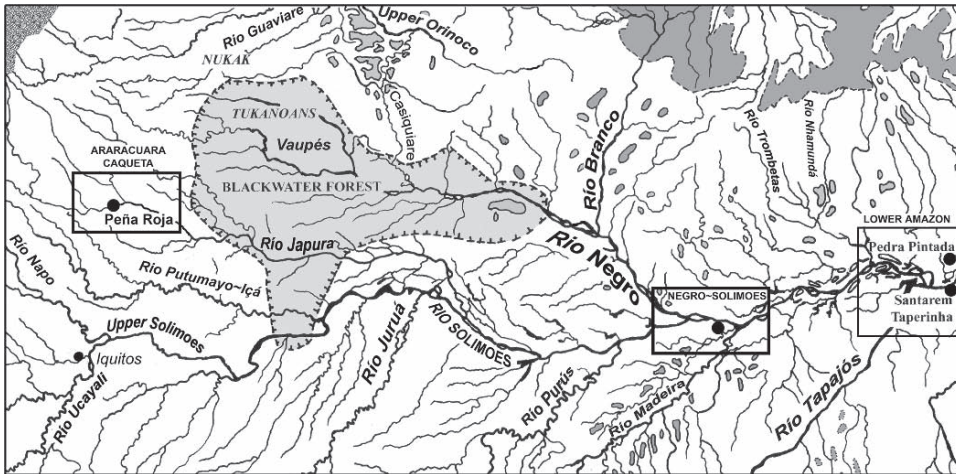


Figure 12.8. Map of the rivers along the central section of the Amazon basin. Insets locate the Araracuara region (Caquetá) in Colombia (top left), the Negro-Solimões confluence near Manaus in Brazil (center), and the region around Santarem in the lower Amazon, Brazil. (José Oliver)

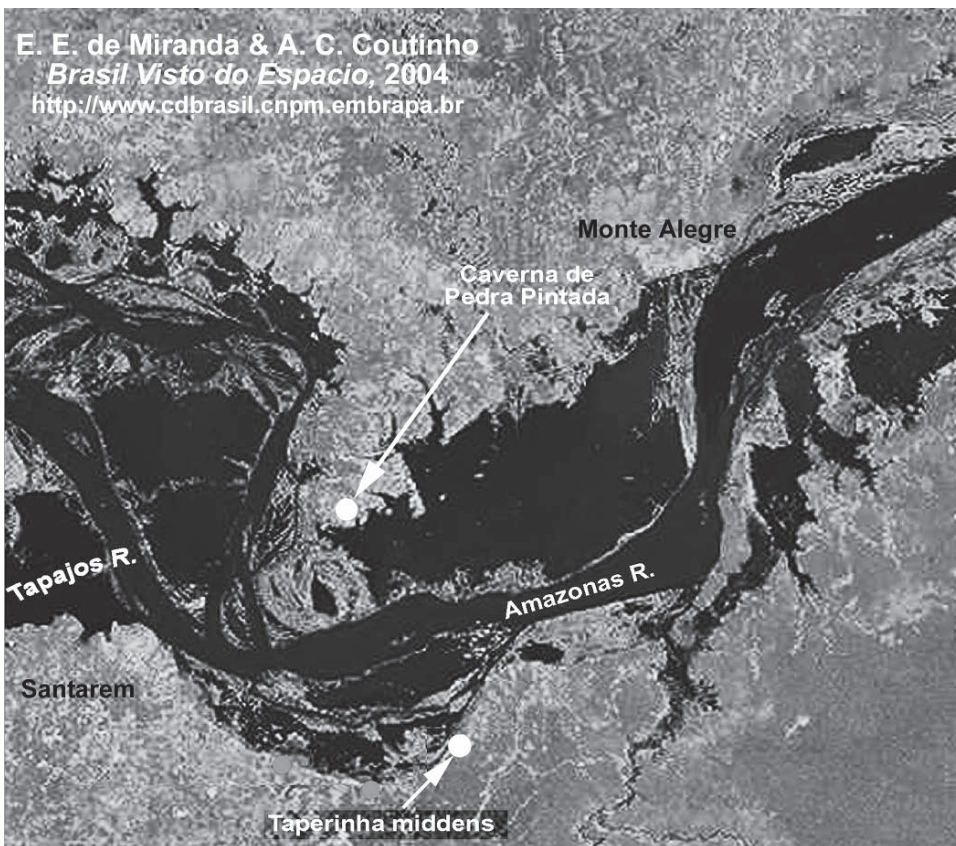


Figure 12.9. Satellite image of the Santarem area locating the sites of Caverna da Pedra Pintada and the Taperinha shell middens along terra firme bluff.

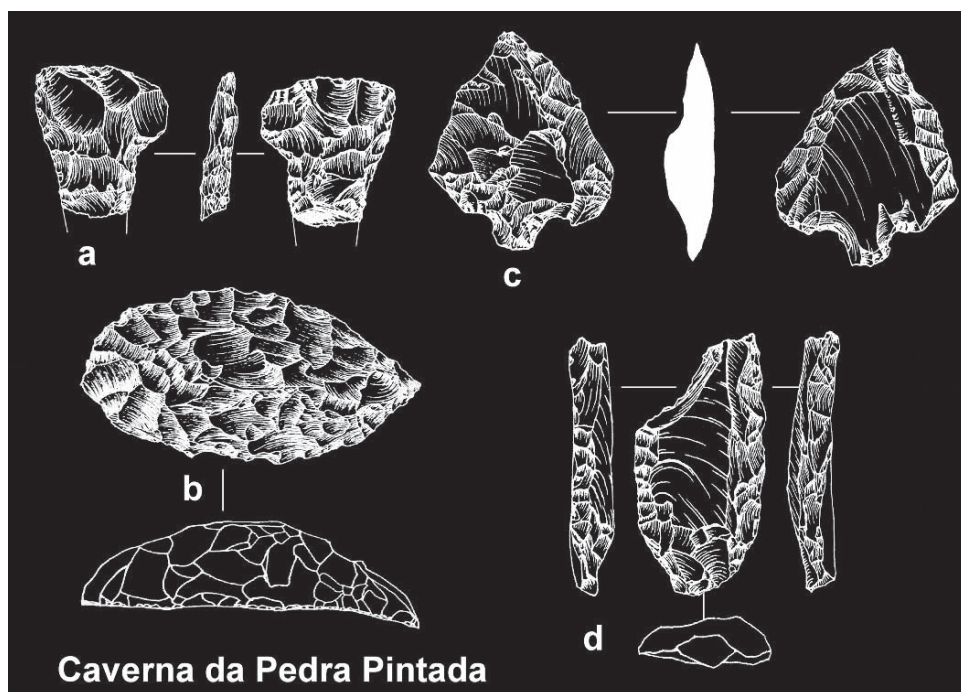


Figure 12.10. Lithic tools from the early Paleo-Indian occupation at Caverna da Pedra Pintada. a. backed bifacially retouched blade; b. a plano-convex scraper; c. a straight-stemmed triangular biface; d. edge scraper (and awl, with distal tip broken?). (after Roosevelt et al. 1996 by José Oliver)

Among the plant remains identified are: leguminous jataí (*Hymenaea parvifolia*) seeds for flour, medicine, varnish; wood for construction; edible Brazil nut (*Bertholetia excelsa*); edible starchy fruit achu (*Sacoglottis guianensis*); nutritious pitomba seed (*Talisia esculenta*); and tarumã (*Vitex cf. cymosa*), a várzea tree whose seeds are used today as fish bait. Seeds from the sacurí (*Attalea microcarpia*), curuá (*Attalea spectabilis*), and tucumã palms were also identified; today they are valued for their nutritious edible fruits and as a source of raw material (Roosevelt et al. 1996: 379). All of these plant remains are still found in the eastern Amazon and Atlantic rainforests, in the lower Amazon terra firme, and the sandy várzea forests. Most of the trees that have been identified produce fruit from December to February, the rainy season, while sacurí and curuá palms produce fruit throughout the year (Roosevelt et al. 1996: 379). The palm trees tend to proliferate in disturbed habitats, thriving in regimes of high rainfall. Although animal bones were poorly preserved, the most important were river fishes, including the giant pirarucú (*Arapaima gigas*) and tiara (*Hoplias malabaricus*), which are today most abundant and easily fished during the dry season (Figure 12.11). Juvenile land tortoise and aquatic turtle bones of the genera Cryptodira, Testudinidae and Pleurodira were also identified. Aquatic turtles and their eggs are easily captured at the height of the dry season, when they lay eggs in the sandbars and beaches within the floodplain. Instead of the old conventional image of a big game hunting economy with a narrow spectrum foraging diet, paleo-Indian subsistence for nearly two millennia at Pedra Pintada focused on broad-spectrum tropical forest and river foraging (Roosevelt et al. 1996: 380).



Figure 12.11. Two Ye'kuana (Carib) fishermen are hauling a large catfish (*Arapaima* sp.?) from the Orinoco-Ventuari river confluence. Fish is the primary source of protein in Amazonia. (photo by José M. Cruxent)

The Middle Holocene (Archaic Period) occupants at Pedra Pintada continued a similar broad-spectrum diet pattern of rainforest, floodplain and river exploitation, even as their tool complexes changed. The latter includes ceramic technology, which had come into use around 7580BP (Roosevelt 1995; Roosevelt et al. 1991: 1621–1624; Roosevelt et al. 1996: 380; see Figure 12.12). These initial pottery-making (Paituna phase) groups were likely

temporary visitors from settlements probably located along or near the edge of the lower Amazon floodplain, and were closely related to the Taperinha phase occupations to be discussed below.

Elsewhere in Brazilian Amazonia, between 11,000-8000 BP, there is ample evidence for the presence of other Late Pleistocene to Early Holocene human occupations encompassing diverse upland forest and savanna habitats. The Itaparica tradition, for example, is characterized by large quartzite unifacial scrapers and rare stemmed triangular projectile points. Subsistence data indicate a focus on a broad spectrum of river fauna and forest tree fruits. The Dourado tradition, comparable to Itaparica, is represented by the famous Abrigo do Sol rock shelter site located in the Matto Grosso do Sul region, dating between 11,500 and 6000 BP (Schmitz 1987; Miller 1987; Prous 1991). Also, along the Jamarí River, a tributary of the Maderia, the Itapipoca tradition (9000-5000 BP), yielded comparable lithic complexes that included hammer-stone tools apt for grinding plant materials (Politis 2001: 47–48). It is in the Jamarí-Madeira region, during the much later but still pre-ceramic Massangana phase (4,800-2,600 BP), that Miller (1992: 37–38) reports an association with terra preta soils, which he tentatively interpreted as evidence for the presence of semi-sedentary, incipient agricultural groups (but see Neves et al. 2003: 37–38).

Foragers and Itinerant Gardeners of Araracuara

Peña Roja site is located 26 km downstream of the Araracuara settlement, on the north margin of the Middle Caquetá River (Mora et al. 1991; Cavelier et al. 1995: 27–44; Llanos Chaparro 1997). It is the earliest known pre-ceramic occupation in the tropical rainforests near the Colombia-Brazil border. Three radiocarbon dates bracket the earliest occupation between 9250 ± 140 and 8090 ± 60 BP (Archila Montañéz 1999: 72, 80) (Figures 12.13, 12.14). Based on extensive archaeobotanical research in this area, it is known that a humid, warmer period began around 10,500 BP marking the transition to the early Holocene. Between 9000 and 8000 BP the climate became somewhat drier, though still warm. *Cecropia*, a pioneering tree, became abundant at this time. Throughout these periods, the pollen data are indicative of a tropical rainforest. Between 6500 and 4000 BP the climate changed again to very humid and warm, more so than at present. The Peña Roja preceramic occupation was followed by a hiatus in the archaeological record and a much later reoccupation around the Christian era by ceramic-using groups. Amazonian Dark Earths (ADE) developed during the late occupation, after 1800 BP, as a result of intensive human activity (Herrera 1981; see also Herrera et al. 1980–81; Eden et al. 1984; Andrade 1986). Most archaeologists seem to agree that ADE were the result of intentional human behavior, designed to intensify agricultural production (Myers 2004; Erickson 2003; Denevan 2001).

The archaeological excavations recovered an astonishing quantity and range of well preserved palm seeds and fruits, alongside flaked and ground stone implements, from preceramic levels (9250-8100 BP). Abundant charcoal was also recovered, from which fifteen kinds of wood have been recently identified. Among the modern Andoque (Caquetá) these woody species are used as fire wood, for smoking (meat/fish), lighting, construction, domestic artifacts, weapons, musical instruments, pottery, canoes, ritual artifacts, ornaments, food, fish/hunt bait, rearing larvae, medicine, and poison (Archila Montañéz 1999). In addition to various edible wild fruits, useful plants identified include fish poisons, one of which (*Cayorcar glabrum*) today is also added to curare, a poisonous sap mixture that paralyzes the respiratory and nervous system, applied to blowgun darts for hunting terrestrial animals and birds high in the forest canopy (see Politis 2001: fig. 1).

About 78% of all the seeds recovered have been identified by Archila Montañéz (1999: table 7.1) of which 68% are of palm trees (Figure 12.15). Of the 26,708 seeds recovered, 16,024 belonged to 11 palm species, and 9,080 to various species of wild fruits (1,604 remain unidentified). In addition, 424.8 kg of charcoal wood were recovered from preceramic levels, resulting in 12 different tree families and 15 identified taxa. The much later ceramic occupation, associated with Camani (a local tradition) and Nofurei (Guarita subtradition of the Amazonian Polychrome) components, revealed 11 woody taxa, 10 of which overlapped with those present in the preceramic level. This suggests a remarkable continuity in the selection of forest wood resources in the Caquetá region.

The great majority of the seeds recovered are of palm trees belonging to four genera: *Oneocarpus*, *Mauritia*, *Maximiliana*, and *Astrocaryum* (Figures 12.15, 12.16). Curiously, the only fully domesticated palm so far known, the peach palm (*Bactris gasipaes*), is absent. Nevertheless, palm fruit processing was one of the most important activities carried out at the site, and the nutritional value of these palms should not be underestimated. For example, the oil of the seje palm seeds has a nutritional value comparable to olive oil; its protein content is said to surpass that of legumes and grasses; the beverage made from seeds has a nutritional value comparable with human milk and superior to cow's milk. Seje palm seeds predominate in the preceramic phase, becoming rare during the later agricultural-ceramic occupation phases (Archila Montañéz 1999). Today it does not naturally grow in dense stands, except where human agency is involved. A beverage is produced by boiling the seeds in water or by grinding them, straining the pulp, and adding water. In addition the rachis of the palm leaves is used as fiber for basketry. During the fruiting season (March-June) it also attracts spider monkeys, macaws, and toucans (Acero Duarte 1982; Cárdenas and Politis 2000; Barbosa Rodrigues 1989 [1903]).

The moriche or burití palm (*Mauritia flexuosa*), whose seeds only occur in the preceramic phase, grows in swamps or permanently flooded areas (Figure 12.15). During the high flood season, fish become the major seed consumers. During low flood, land and semi-aquatic mammals are attracted by the seeds, primarily tapir (*Tapirus terrestris*), peccary (*Tayassu pecari*; *T. tajacu*), and agouti (*Agouti paca*). The entire moriche palm is useful. Seed pulp/juice can be fermented to produce an alcoholic drink or consumed directly. Drink preparation requires heating the seeds in water or roasting, then grinding the seeds to separate the flesh from the seed nut. The seeds also produce nutritious, starchy flour, while the leaves, petiole, and trunk have other uses, such as hammock fiber, thatch, basketry, and wood for construction. Moreover, the palm's trunk harbors nutrient rich, butterfly larvae much sought after as a delicacy by modern Indians. The main limitation is that the peak fruiting season is limited to three to four months (March-June) of the year.

The Peña Roja stone artifacts are those that might be required by someone working with a range of tropical woods and fibers. Stone flakes were used for side-scraping. Other stone tools produced by the bipolar flaking technique resulted in small blades with sharp edges for cutting. Some blades show retouching to sharpen the cutting edges. Stone burins and drills were used for engraving and for puncturing. Cobbles and pebbles show abrasion and use-wear either on one edge or at the distal ends, suggesting various pounding and grinding activities. Larger modified cobbles were used as chopping tools. Coarse sandstone slabs were used as abraders, and some tinted with a red pigment (Llanos Chaparro 1997). Overall this tool kit strongly emphasizes work on wood and vegetable fiber, and not specifically for hunting, fishing, or butchering animals.

CULTURAL-CHRONOLOGICAL FRAMEWORK
LOWER AMAZON~COAST OF PARÁ, BRAZIL
modified from Oliver (2001)

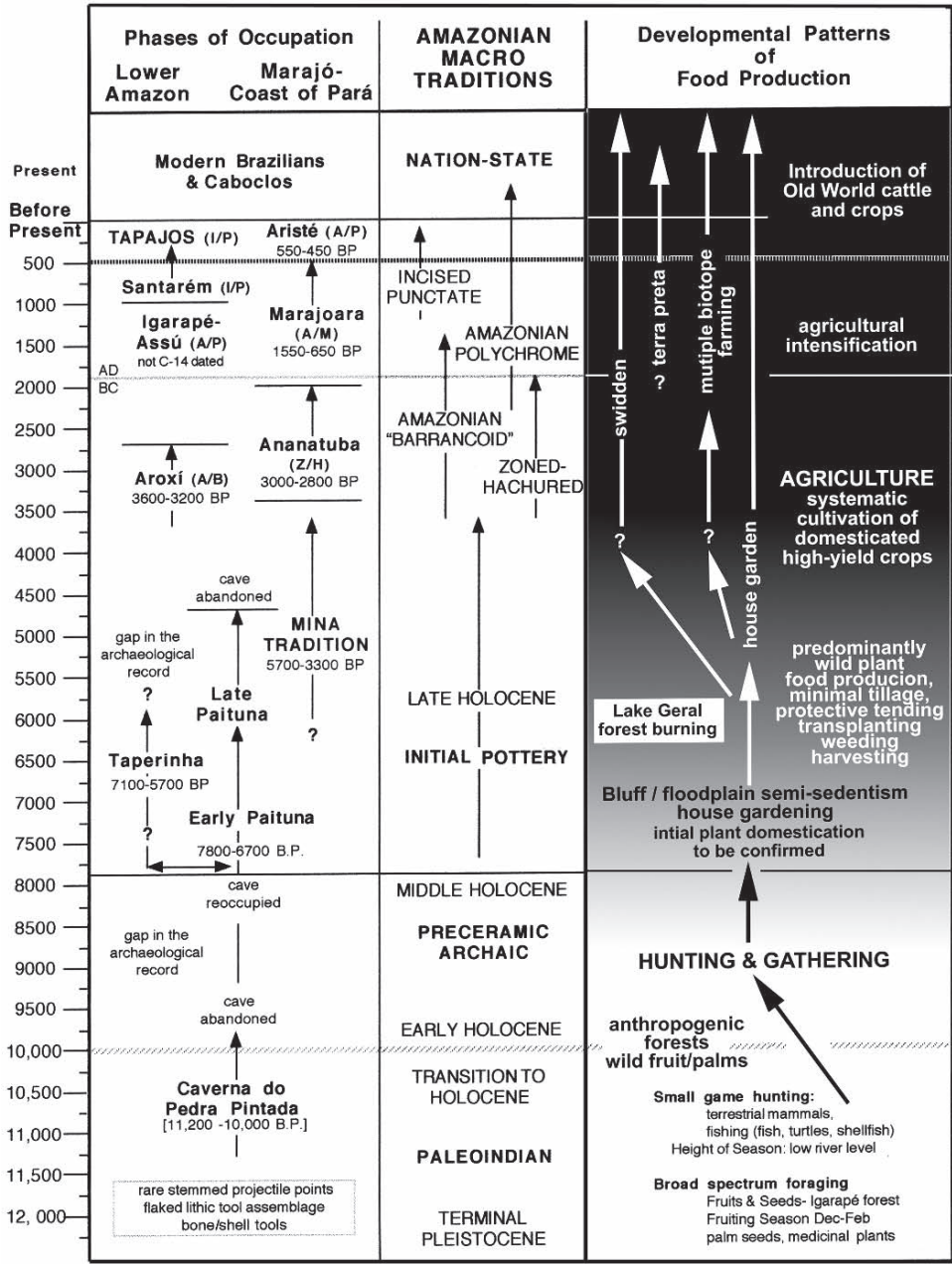


Figure 12.12. The cultural-chronological framework for the lower Amazon, Marajó, and Pará coast areas. The left columns track the various phases of occupation and major archaeological traditions. The right hand column tracks the developmental sequence of food-yielding systems inferred for the region (after Oliver 2001).

CULTURAL CHRONOLOGICAL FRAMEWORK
ARARACUARA REGION-AMAZONIAN COLOMBIA

Adapted from Oliver (2001)

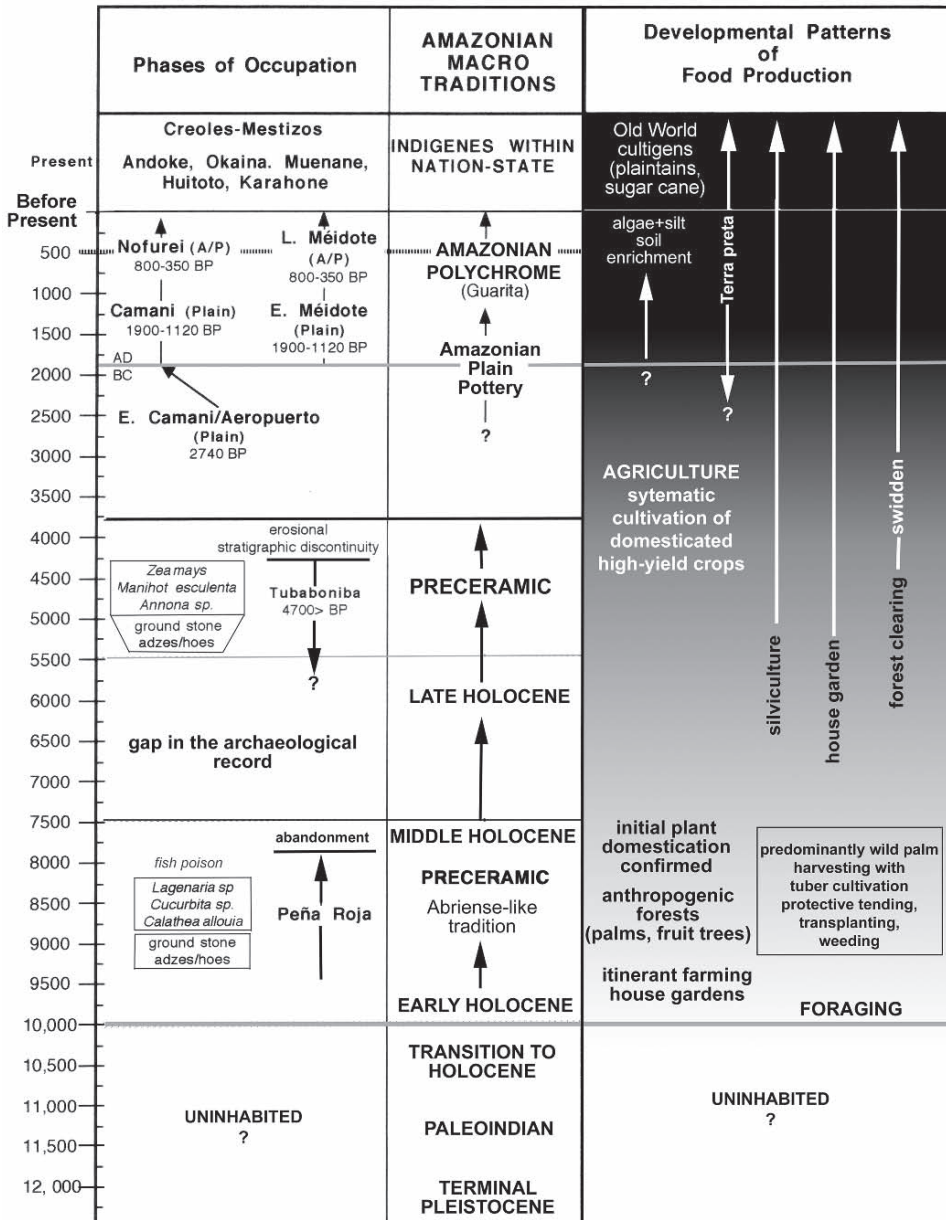


Figure 12.13. The cultural-chronological framework for the Araracuara region, Caquetá River in Amazonian Colombia. The left columns track the various phases of occupation and major archaeological traditions. The right hand column tracks the developmental sequence of food-yielding systems inferred for the region (after Oliver 2001).

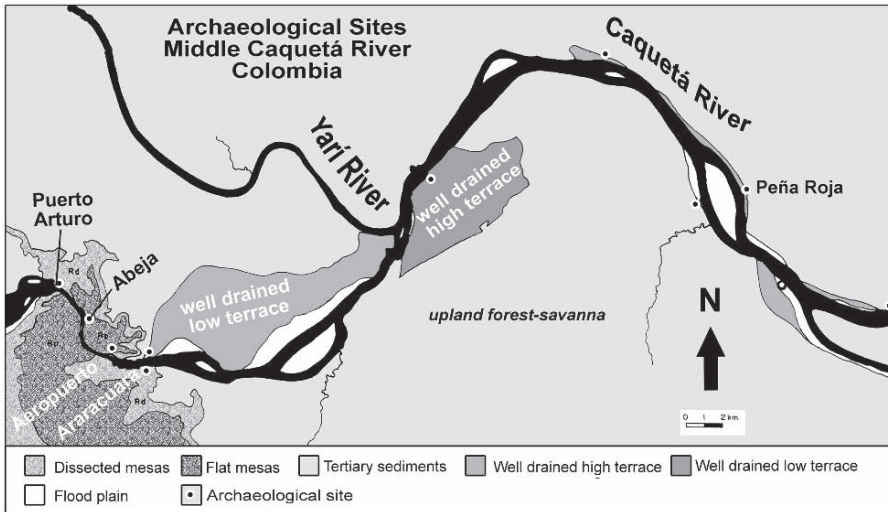


Figure 12.14. Map of the middle Caquetá River, Araracuara region, in Amazonian Colombia. (José Oliver)

Crucially, the tool assemblage at Peña Roja also included stone axes with side notches for hafting to a wood handle, and a number of mortar-like stones and pestles (*manos*) for nut-cracking and pounding vegetable matter (Llanos Chaparro 1997). The presence of notched axes indicates tree-felling, and possibly hoeing for limited soil tillage or digging for roots (Oliver 2001). Equally significant, phytolith analysis revealed the presence of domesticated lerén or arrowroot (*Calathea cf. allouia*), bottle gourd (*Lagenaria* sp.) and calabash (*Cucurbita* sp.) (Piperno 1999; Archila Montañéz 1999: 174). Arrowroot is also among the earliest recorded for pre-ceramic/archaic periods in Panamá and coastal Ecuador. At Aguadulce and Cueva de Los Ladrones in Panamá, arrowroot phytoliths dated between 10,000 and 7000 BP, while at Las Vegas in Ecuador arrowroot phytoliths dated between 9740 BP and 9080 BP (Piperno and Pearsall 1998: 186–187, table 4.5).

The pre-ceramic occupants at Peña Roja were primarily hunter-gatherers who also practiced small-scale gardening. I have applied to them the term of *itinerant gardeners*, somewhat analogous to the nomadic agricultural strategy developed by the post 1900s Gorotire Kayapó on the Middle Xingú (Posey 1994: 271–86; Oliver 2001: 59), or perhaps more like the Nukak foragers who cultivate and harvest wild roots, including some domesticated plants, in the Guaviare forest (Politis 1996, 1999, 2001). While the modern Nukak studiously avoid setting up camps directly on older camp sites (so as not to interfere with palm forest/orchard that developed in situ since), the archaeological deposits at Peña Roja site seem to suggest continual or more intense refuse accumulation. But whether this is the result of frequent return visits to the same base camp-site after foraging rounds or the result of more extended in-residence periods cannot yet be determined.

Although speculative, a possible scenario would be a 4- or 5-month stay at Peña Roja to coincide with the March-June fruiting season of the various palm trees, which also attract potential game. If the lerén root crop was cultivated in domestic gardens (see Figure 12.7), the 9-month maturation period it requires would imply that during the tuber's growth stage the inhabitants would be free to forage away from this camp site



Figure 12.15. Seeds of a *Mauritia flexuosa* palm tree from the Lower Orinoco. This species grows in seasonally flooded flood plains and back caños. (José Oliver)

(some time after June) and harvest the tubers upon their return (around March). If the Peña Roja groups also maintained a string of small-scale gardens en route to other temporary encampments, they would also have an underground stock/storage of root crops awaiting weeding, harvesting and replanting. Thus, people could be moving from one garden to the next, rather than merely shifting chacras (farm plots), and scheduling the



Figure 12.16. Nukak woman (with a pet monkey on her lap) is wrapping starch seje (*Oneocarpus* sp.) dough to be baked over fire in the Guaviare forest, Amazonian Colombia. (photo by Gustavo Politis)

trekking to coincide with the fruiting of wild trees and palm tree orchards. These itinerant gardeners would be actively involved in the dispersion of seeds (such as palms) and other useful plants suitable for the various habitats around the camps. If this were the case, the radius of itinerant foraging and gardening would probably be less than if they were reliant on foraging for scattered wild plants and the pursuit of game.

Significant evidence of forest slash-and-burn, mainly associated with maize pollen, occurs sometime before 4700 BP at Abeja site (Tubaboniba phase), and other nearby sites located some 26 km upstream from Peña Roja (Figures 12.13, 12.14). For the Tubaboniba pre-ceramic phase (<4700 BP), archaeologists have identified a localized expansion of savanna over tropical forest species, associated with abundant charcoal (i.e., fires), along

with the cultigens sugar apple (*Annona* sp.), manioc (*Manihot esculenta*) and maize (*Zea mays*) (Mora et al. 1991). The gap in the archaeological record between <4700 and 8000 BP in the region is unfortunate, as this is when the shift to early agriculture is likely to have occurred (Oliver 2001). Marked by a stratigraphic discontinuity in the excavation around 4700 BP, the Abeja site was abandoned for the next three millennia, thus producing a second significant gap in the record.

The next reoccupation, the Méidote phase, took place around 1800 BP (AD 150) and continued until about 800 BP (AD 1200), after which time the Abeja site was abandoned and the forest regenerated in the area (Mora et al. 1991:43). It is during the Méidote occupation when ceramics related to the Camani ceramic complex first appeared in the Caquetá region (Herrera et al. 1982). Camani/early Méidote ceramic vessels are occasionally decorated with a red slip, but most often are plain. These include large and medium hemispherical vessels, vessels and bowls with a concave-convex profile, and flanged or triangular thickened rims, and the ubiquitous budare (clay griddle) most probably used for baking cassava (casabe, beijú, or manioc bread). Also present are topias, or solid quasi-cylindrical ceramic objects used to rest vessels and griddles over fire hearths (Herrera et al. 1982; Eden et al. 1984; Andrade 1986).

Around 1045 BP (ca. AD 1000), the Nofurei complex appeared in the region. Nofurei ceramics comprise a diverse set of vessel forms characterized by excised and white/red painted decoration belonging to the Amazonian Polychrome tradition (see Hilbert 1968). It is likely that the abrupt ceramic discontinuity between Méidote/Camani and Nofurei marks the invasion of groups from the Japurá and Negro-Solimões areas, where somewhat earlier to contemporaneous local variants (dating to after AD 500) of the Guarita sub-tradition are reported for various sites, such as Mangueiras, Manacapurú, Açutuba (Figure 12.17), Osvaldo, Lago Grande and Hatahara (Heckenberger et al. 1999; Petersen et al. 2001; Neves et al. 2003; Myers 2004: 79–85). The Amazonian Polychrome tradition may have its earliest representatives in Pocó-Bõa Vista sites of the Nhamundá-Trombetas basin, and in the Marajoara phase sites on Marajó Island (Brochado and Lathap 1982; Schaaf 2001; Roosevelt 1991).

Excavations at various Camani/Méidote and Nofurei ceramic sites in Araracuara (Caquetá) clearly suggest intensive agricultural practices (including slash-and-burn) and an increasing range of crops being cultivated. By about 1150 BP (ca. AD 800), intense human activities are registered at Aeropuerto site (Figures 12.13, 12.14) by the development of a rich organic anthropogenic soil (ADE) that is sought today by Andoque and Witoto groups as prime agricultural land (Oliver 2001). Archaeobotanical and sediment analyses at Aeropuerto also suggest the deliberate transportation of alluvial silt mixed with aquatic algae from the floodplain as a method of soil enrichment (Mora 2004; Myers 2004: 85). High organic domestic refuse, plus aquatic algae and alluvium makes for excellent bedding and mulching. It is calculated that 245 tons of silt and algae or 90 tons of mulch would be required to cover one centimeter of topsoil over one hectare, with the implication of high labor investment and social organization (Mora 2004).

Pedra Pintada and Peña Roja present differences as well as similarities in subsistence strategies within a pattern of tropical lowland hunting, foraging and in the latter case, of itinerant gardening. While no domesticated food plants have been detected at Pedra Pintada, at least one significant root crop and two technological crops are present at Peña Roja, though some 1000 to 2000 years separate these two sites. Fish and river mollusk gathering and small game hunting and processing appeared to be a more prominent activity at Pedra Pintada, yet poor bone preservation at Peña Roja demands caution. Peña Roja's stone tool

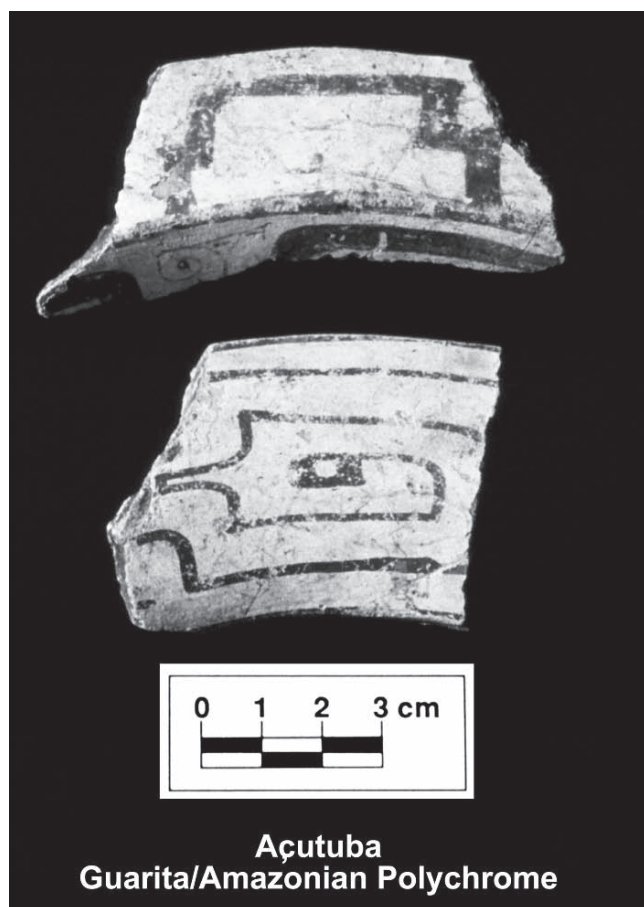


Figure 12.17. Amazonian polychrome pottery of the Guarita subtradition. Samples are from Açutuba site, Negro River area. This pottery is stylistically related to the Nofurei complex in the Araracuara-Caquetá region. (José Oliver)

assemblage included implements to grind vegetable fiber, crack seeds, and axes for tree-felling. It can be predicted that when the archaeological gap between 8000 and 4700 BP in Araracuara-Caquetá is bridged, the new information will reveal a shift from foraging and itinerant farming to agriculture, in some thought not all sites. As discussed, already before 4700 BP an agricultural system that included forest slash-and-burn with manioc and maize (and *Annona* trees) was in place. The next knowledge gap to bridge, between 4700 BP-2800 BP, is perhaps even more critical as by that time some sites were well on their way toward intensive agricultural production that by 1000 BP included black soil and algae mulching techniques.

When one compares the developmental history of the Araracuara region (Figure 12.13) with that of the lower Amazon and coast of Pará (Figure 12.12), particularly in terms of the developing patterns of food procurement/production (right-hand columns), it becomes apparent that there are regional, localized differences in the appearance of particular food systems in each region. These, however, also reflect unevenness and large gaps in the state of our archaeological knowledge.

The Semi-Sedentary Fisher-Folks of the Initial Ceramic Period

At Taperinha site near Santarém (Figure 12.9), Roosevelt et al. (1991) have partly confirmed a prediction made by Lathrap nearly thirty years ago that archaeologists would find an early human occupation characterized by relatively sedentary fisher-folk dedicated to the intensive exploitation of fish resources, and who would exhibit, as a result of reduced mobility, what amounts to a house garden (Lathrap 1977: 724–725). The hypothesis also predicted that “proto-Neolithic” fisher-gatherer sites would yield the earliest ceramics in Amazonia, if not the Americas. Roosevelt empirically demonstrated that such initial ceramics were present by 7080 BP at Taperinha and even earlier, around 7580 BP, at Pedra Pintada—an early pottery tradition that continued for at least another twenty-five hundred years, until about 4500 BP (Roosevelt et al. 1991; Roosevelt 1995: 121–126; 1998: 197–200) (Figure 12.12).

The presence of small, gourd-like ceramic vessels in the case of Taperinha may well imply that plant preparation for consumption required controlled heating (boiling, cooking) to make it digestible for humans. Indeed, some ceramic fragments show the tell tale carbon-soot residue from cooking. In this instance, the sand-tempered ceramic vessels seem to indicate indirect evidence that food plants—not necessarily domesticated—were being gathered (and cultivated?) and cooked, and which required the kind of temperature control that, for example, heated rocks dumped in impermeable baskets or gourd vessels could not provide (Oyuela-Caycedo 1995). The other vessel shape is a simple open bowl with a slightly incurved wall, perhaps used for serving food or storage rather than for cooking. About 3% of the pottery bears incised or punctated geometric designs on the shoulder or rim. Both the Paituna (at Pedra Pintada cave) and Taperinha (near Santarém) ceramic complexes are similar in technology, form and decoration. Sandstone grinding implements along with a few stone flakes, bone awls, mollusks and turtle-shell scrapers complete the typical Taperinha-Paituna artifact assemblage. Fish and shell-fish mollusks are the dominant animal food remains.

The semi-sedentary fishing and gathering pattern also appeared early on along the mouth of the Amazon (eastern Pará State), and associated with a long-lasting ceramic tradition known as Mina (Brochado and Lathrap 1982; Brochado 1984; Roosevelt 1995). The Mina and the related Uruá-Tucumã ceramics are also characterized by simple globular to hemispherical bowl shapes tempered with shell or sand, occasionally bearing a (iron oxide) red slip, but lack incision (Simões 1981). The earliest Mina sites, such as Ponta das Pedras, Porta da Mina and Sambaquí do Uruá, date between 5700 BP and 3300 BP (Roosevelt 1995). There are some forty freshwater shell midden and marine shell-mound (*sambaquí*) sites located on the estuarine and mangrove habitats on the lower Amazon and the eastern coast of Pará State. Uruá fresh-water shell middens (3900–3500 BP) have also yielded polished stone axes, which may suggest forest clearing and, perhaps, incipient cultivation (see Simões references in Roosevelt 1995).

Simultaneously, in the nearby Carajás area (8000–3500 BP), at sites such as Caverna do Gavião, a preceramic tradition focused on unifacial stone technology (flaking on one side or facet only) persisted until 3500 BP, when ceramics first made their appearance there. The Carajás pre-ceramic occupations also showed a broad spectrum diet reflecting the exploitation of tropical forest, river and savanna resources. Although an educated guess, it is probable that Mina-Carajás sites with ceramics of comparable age to the Paituna or Taperinha complexes will eventually be detected.

Despite the presence of ceramics in the Paituna-Taperinha and Mina-Uruá-Tucumã sites, none has as yet yielded hard evidence of domesticated plants. Nor can their subsist-

ence be said to be primarily based on agriculture. Also the *apparent* absence of domesticated plants and other non-food plants, such as gourds, cotton and fish poisons, is likely a problem of sampling and/or preservation. The presence of gourds for net-floats, cotton for nets and fish poisons would have been clear evidence for the intensification fish and aquatic fauna procurement (Sauer 1952; Lathrap 1977). As things stand, the evidence does not refute Lathrap's hypothesis of an early semi-sedentary riparian-estuarine-mangrove oriented fisher-folk characterized by broad-spectrum foraging for plant and aquatic fauna. But whether they also cultivated and maintained domestic gardens remains to be empirically demonstrated. Even with all the new archaeological data that have accrued, the number of actual excavations relative to the numerous, huge and extensive shell middens of the lower Amazon and coast of Pará is extremely limited. Many of the early sites are likely to lie deeply buried, obscured by later period intensive and extensive occupations, not to mention the sambaquís long ago submerged due to marine and estuarine transgression at the beginning of the Holocene. It is expected that as investigations intensify, questions about the nature and degree of sedentism, the development of house gardening and other subsistence practices will be clarified.

It is, however, a safe bet that sometime between 8000 and 5000 BP the house garden, or experimental plot (as intimated at Peña Roja), had become a widespread, standard feature of riverine settlements, from which eventually successful and desirable suites of cultivars were relocated into systematically cleared agricultural fields. Several important domesticated crops, such as manioc, have been recovered at sites far removed from where they were first domesticated. For example, the manioc present in the Zaña Valley in northwestern Perú between 8400-6000 BP implies that its domestication had to have already occurred in the tropical lowlands at a point in time earlier than, at least, 9000 BP. There was significant forest clearing by slashing and burning around 5300 BP—in association with maize—at Lake Ayauchi in Amazonian Ecuador (Pearsall 1995). Forest clearing and burning was also detected in Lake Geral in eastern Amazonia around 5760 BP, though not associated with cultigens (Piperno and Pearsall 1998: 244–265, 280–281; see Bray 1995). In summary, forest slash-and-burn was in place between 6000 and 5000 BP and we may surmise that some form of systematic cultivation was being practiced. What remains unclear is the overall dietary contribution of gathered versus cultivated food-plants.

AGRICULTURE IN THE FORMATIVE PERIOD (4500-2000 BP)

Archaeologists refer to the period spanning ca. 4500-2000 BP in Amazonia as the Formative, to indicate the presence of sedentary village farmers and nascent complex polities (Roosevelt 1999:319–24). Unfortunately, it is precisely during the Formative that the data on economy (especially subsistence), in most parts of Amazonia is very scarce. The lack of knowledge about the critical shift from incipient to intensified agroecology is one of the big “unknowns” in Amazonian prehistory (Oliver 2001).

There is a marked increase in the number and size of known Formative period sites dating after about 4000 BP (2000 BC). These sites reveal prodigious quantities of broken sherds from ceramic vessels used for food preparation, cooking (including budares or clay griddles), food presentation, consumption and storage, as well as specialized vessels for activities other than food-related (e.g., funerary offerings). This evidence leads one to conclude that agriculture provided the bulk of subsistence in terms of calories, although it is

suspected that in a balanced, healthy diet plant foraging and fishing/hunting would have remained significant (see Petersen et al. 2001). While a reasonable inference, the fact is that during the Formative and even post-Formative periods the empirical evidence regarding subsistence patterns is often lacking. There is a paucity of adequate archeobotanical data, including human bone isotope analysis, which should become a regular feature of excavation reports (e.g., van Merwe et al. 1981). For example, while (bitter) manioc is undoubtedly a key crop among Amazonian societies, past and present, it cannot be assumed that it always had the same dietary preeminence or was the only high-yield source of carbohydrates in the past as it is today (on manioc, see Oliver 2001 and references within) (Figure 12.18). As a result of these limitations, archaeologists interested in paleoeconomy and subsistence can only offer educated guesses about the precise nature of the food production systems that were in operation throughout the Formative and beyond.

What is clear is that between 4500-3500BP sites with elaborate ceramic assemblages are found widespread throughout the greater Amazonian lowlands, especially along river bluffs adjacent to floodplains, and relatively close to main-stream channels. In Peru's middle Ucayali, around the Yarinacocha oxbow lake, the Tutishcainyo tradition with zoned-incised/hachured decoration and a complex set of vessels appeared sometime around 4000-3800BP (Lathrap 1958, 1970; Myers 2004). Venezuela's La Gruta-Ronquín (Saladoid tradition) complexes, characterized by a wide range of vessels, including clay griddles, presumably used to bake cassava (but could be other flour-yielding tubers) appeared "suddenly" along the middle Orinoco bluffs, sand bars and back *caños* (creeks) from 4500-3000BP (Cruxent and Rouse 1958-59; Rouse 1978; Roosevelt 1980; Vargas 1981; see also Zucchi 1992, 1999). An even earlier (5300-4000?BP) non-Saladoid/Baranocid ceramic component was excavated at the Agüerito site (Zucchi and Tarble 1982, 1984;



Figure 12.18. A Baré (Arawak) woman is straining squeezing bitter manioc juice from a tipiti by sitting on a wood lever. Manioc (*Manihot esculenta*) is a key staple crop in Amerindian diet. (photo by Eduardo Neves)

Zucchi et al. 1984; Lathrap and Oliver 1987). Situated on a point bar, in a sandy deposit of the Orinoco-Apure confluence, Agüerito also yielded abundant clay griddles. Barrancoid tradition (Figure 12.19) sites (3000-1000 BP) situated on the high levees of the left bank of the lower Orinoco are associated with patches of ADE (Figure 12.20), which could potentially have been used for cultivation after sites abandonment. Maize in the Orinoco does not appear until very late Corozal times (ca. AD 500) as a Pollo-related race. But it is not until after about AD 1000 (Camoruco phases, Arauquinoid tradition) that a Chandelle-like race, together with manos, metates and aripos (slim clay griddles) favor the hypothesis of maize becoming a key staple crop (Roosevelt 1980, 1997a). Although the Saladoid-Barrancoid traditions from Venezuela are regarded as historically and culturally related to the Amazonian versions, the environmental and ecological characteristics in the Orinoco

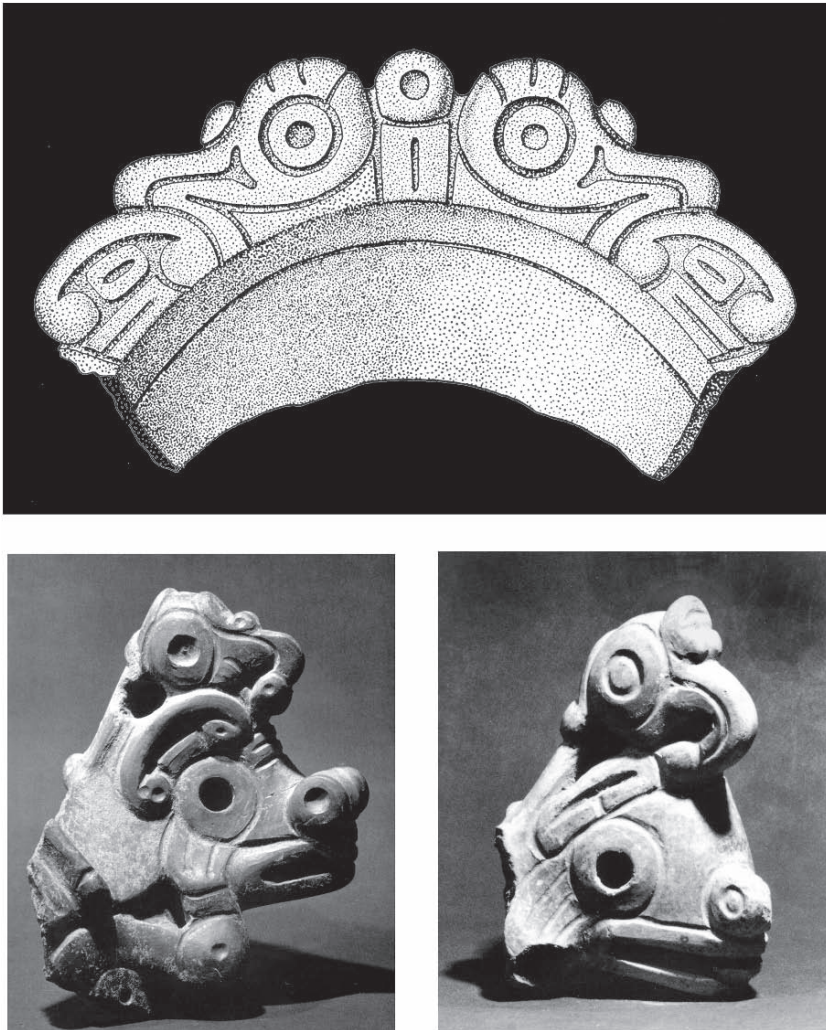


Figure 12.19. Barrancoid ceramics from the lower Orinoco. Top: a harpy eagle holds a trophy head on in its beak; bottom: a biomorphic head surmounted by a harpy eagle (ca. 900-500 BC). (José Oliver)

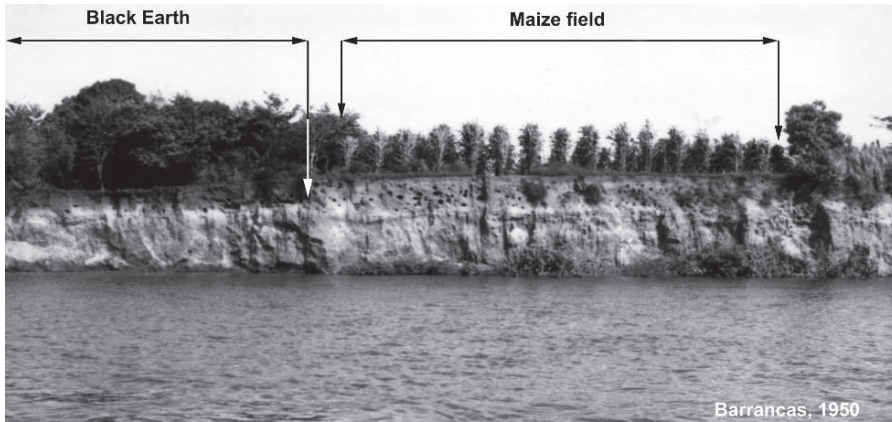


Figure 12.20. The site of Barrancas on a high levee along the lower Orinoco in 1950. The Los Barrancos site is visible on in the bluff's profile, a thick terra preta (ADE) created by midden deposition and habitation activities. The ADE relative date ranges between 900 BC (Barrancas style at bottom) and AD 1000 (Guarguapo style at the top). A maize garden is visible to the right (east) of the site. This particular site has long since collapsed into the Orinoco River. Curiously, modern (1950s) maize is not planted on the richer ADE. (photo by José M. Cruxent)

River area are different from Amazonia proper—albeit to the same degree that southern Xinguan differs from, say, the upper Amazonian biomes. It follows that the historical, developmental trajectories of agriculture in the Orinoco do not necessarily parallel those of other regions in the Amazon. Other Formative sites and areas could be mentioned, but the archaeobotanical data is simply too limited to be able to specify the agroeconomic systems that characterized the sites belonging to any of these Formative traditions.

CONCLUSION

The empirical data of sites such as Pedra Pintada, Peña Roja, Abejas, Taperinha and Mina, as a group, begin to shed light on the kind of subsistence patterns and evolving agricultural systems that formed the underpinnings of complex societies in Amazonia. Between 11,000 and 9000 BP at Pedra Pintada there is no evidence of agriculture, but it is likely that the systematic exploitation of nutritious palm seeds and fruit trees led to incipient silviculture focused on a broad spectrum of palm species adapted to both flood plain and upland conditions. Such activities eventually lead to managed (anthropogenic) forest food resources; particularly palm forests, a tradition that is still manifest among the modern Nukak and Makú foragers of the Guaviare-Vaupés regions. Although forest management and cultivation seems likely, there is no direct evidence for plant domestication at this time. But between 9000-8000 BP, the evidence in the Araracuara-Caquetá region strongly suggests a subsistence economy involving itinerant gardening that included lerén (arrowroot) cultivation, with calabashes and bottle gourds grown in and around camp-sites near the river. Between 7800-4500 BP (Taperinha-Paituna phases) bluff settlers and cave users along the lower Amazon appear to continue the previous multiple biotope exploitation and broad spectrum diet strategy focused on fishing, shellfish gathering and tree-fruit and palm seed harvesting, but now pottery made its first appearance (7580-7100 BP). This pottery shows signs of use for cooking food and was not used exclusively for storage or food presentation, as was the

case among the San Jacinto 1 (6000–5000 BP) foragers of Colombia (Oyuela-Caycedo and Bonzani 2005). Changes in food preparation techniques (cooking in ceramic vessels) imply improved health from higher nutritional benefits and increase in population growth. This broad spectrum foraging diet, with incipient farming and forest/plant management on the rise, is the platform from which differing Amazonian agricultural systems emerged, creating human-altered, food-yielding landscapes.

For now, the evidence supporting systematic forest disturbances associated with some form of slash-and-burn farming technique within Amazonia is bracketed between 6000 BP and 5000 BP (Piperno and Pearsall 1998: fig. 5.3), and in Araracuara associated with manioc and maize cultivation. This millennium can be proposed as the key period when the shift to agricultural dependence emerged and consolidated, and is a useful benchmark for the beginning of the Amazonian Formative. What followed during and after the Formative is where the history of agricultural development and intensification becomes complex and regionally diverse, the details of which I will leave for discussion at a later opportunity.

It is appropriate to conclude this paper by reiterating one my favorite quotes on the matter of agricultural potential in Amazonia: “Environments are neutral. Their potential for human use is determined by both their characteristics (which people can change) and by the technology available for exploiting them combined with the will to do so. ‘Agricultural potential’ is not inherent in nature. The concept contains the word ‘culture’” (Denevan 2001: 302).


ACKNOWLEDGMENTS I wish to dedicate this chapter as a tribute to the memory of my friend and colleague James Petersen (1954–2005), with whom I shared the same passion for all things Amazonian and, as well, Caribbean. His loss is deeply felt. This chapter relies heavily on a synthesis I prepared for the publication accompanying the British Museum’s “Unknown Amazon” exhibit (Oliver 2001). It goes without saying that only I am accountable for its contents, including any errors it might contain.

REFERENCES

- Acero Duarte, Luis E., 1982, *Propiedades, Usos y Nominación de Especies Vegetales de la Amazonia Colombiana*. Corporación de Araracuara. DAINCO, Convenio Colombiano-Holandés, Bogotá.
- Andrade, Angela, 1986, *Investigaciones de los Antrosoles de Araracuara*. Fundación de Investigaciones Arqueológicas Nacionales. Banco de la República, Bogotá.
- , 1993, Sistemas agrícolas tradicionales en el medio río Caquetá. In *La Selva Humanizada: Ecología alternativa en el trópico húmedo Colombiano*, edited by F. Correa, pp. 65–85. Fondo FEN Colombia, Fondo Editorial CEREC, second edition. Bogotá.
- Archila Montañéz, Sonia, 1999, Characterisation of Charcoal Assemblages from Archaeological Sites in the Colombian Amazon Region. A Model based on Ethnography. Ph.D. dissertation. University of London, England.
- Århem, Kaj, 1993, Ecosofía Makuna. In *La Selva Humanizada: Ecología Alternativa en el Trópico Húmedo Colombiano*, edited by F. Correa, pp. 110–126. Fondo FEN Colombia, Fondo Editorial CEREC, second edition. Bogotá.
- Balée, Willian, 1994, *Footprints of the Forest: Ka’apor Ethnobotany: The Historical Ecology of Plant Utilization by an Amazonian People*. Columbia University Press, New York.
- , 1998, *Advances in Historical Ecology*. Columbia University Press, New York.
- Barbosa Rodrigues, João, 1989 [1903], *Sertum Palmarum Brasiliensium*. Editora Expressão e Cultura, Exped Ltd, Rio Janeiro. [facsimile of the 1903 first edition]
- Bray, Warwick, 1995, Searching for environmental stress: climatic and anthropogenic influences on the landscape of Colombia. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Applications*, edited by Peter W. Stahl, pp. 96–112. Cambridge University Press, Cambridge.

- Brochado, José P., 1984, An Ecological Model of the Spread of Pottery and Agriculture into Eastern South America. Ph.D. dissertation. Department of Anthropology, University of Illinois at Urbana-Champaign.
- and Donald W. Lathrap, 1982, Chronologies in the New World: Amazonia. Unpublished manuscript. On file at the Department of Anthropology, University of Illinois at Urbana-Champaign. Illinois. [Revised by authors in 1984].
- Cárdenas, Dairón and Gustavo G. Politis, 2000, Territorio, movilidad, etnobotánica y manejo del bosque de los nukak orientales. *Estudios Antropológicos*, No. 3. Universidad de Los Andes-SINCHI, Bogotá.
- Cavelier, Inés, Camilo Rodríguez, Luisa F. Herrera, Gaspar Morcote, and Santiago Mora, 1995, No sólo de caza vive el hombre. Ocupación del bosque amazónico, holoceno temprano. In *Ambito y Ocupaciones Tempranas de la América Tropical*, edited by I. Cavelier and S. Mora, pp. 27–44. Fundación ERIGAIIE-Instituto Colombiano de Antropología, Bogotá.
- Cruxent, José M. and Irving Rouse, 1958–59, *An Archaeological Chronology of Venezuela*. Pan American Union Social Science Monographs, No. 6, Vols. 1 and 2. Pan American Union, Washington, D.C.
- Denevan, William M., 1996, A bluff model of riverine settlement in prehistoric Amazonia. *Annals of the Association of American Geographers*, 86 (4): 654–681.
- , 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press.
- Dillehay, Tom D., Gerardo Ardila Calderón, Gustavo G. Politis, and Maria da Conceição de Moraes Coutinho Beltrão, 1996, Earliest hunters and gatherers of South America. *Journal of World Prehistory* 6 (2): 145–204.
- Eden, Michael J., Warwick Bray, Leonor Herrera and Colin McEwan, 1984, Terra Preta soils and their archaeological context in the Caquetá basin of southeast Colombia. *American Antiquity* 49 (1): 125–140.
- Glasser, Bruno and William Woods (eds.), 2004, *Explorations in Amazonian Dark Earths*. Springer, New York.
- Harris, David R., 1971, The ecology of swidden cultivation in the upper Orinoco rain forest, Venezuela. *Geographical Review* 61: 475–495.
- , 1989, An evolutionary continuum of people-plant interaction. In *Foraging and Farming. The Revolution of Plant Exploitation*, edited by D. R. Harris and G. Hillman, pp. 1–8. Unwin Hyman, London.
- , 1991, *Settling Down and Breaking Ground: Rethinking The Neolithic Revolution*. Twaalfde Kroon-Voordracht Gehouden Voor De Stichting Nederlands Museum Voor Anthropologie en Praehistorie-University of Amsterdam. Joh. Eschendé en Zonen, Haarlem.
- Heckenberger, Michael J., 1996, War and Peace in the Shadow of Empire: Sociopolitical Change in the Upper Xingu of Southeastern Amazonia, A.D. 1400–2000. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.
- , 2005, *The Ecology of Power: Culture, Place, and Personhood in the Southern Amazon A.D. 1000–2000*. Routledge, New York and London.
- , James B. Petersen, and Eduardo G. Neves, 1999, Village size and permanence in Amazonia: two archaeological examples from Brazil. *Latin American Antiquity* 10 (4): 535–576.
- Herrera, Leonor, 1981, Relaciones entre las ocupaciones prehispánicas y suelos negros en la cuenca del Río Caquetá en Colombia. *Revista CIAF* 6 (1–3): 225–42.
- , Warwick Bray and Colin McEwan, 1980–81, Datos sobre la arqueología de Araracuara. *Revista Colombiana de Antropología* XXIII: 183–251.
- Herrera, Luisa F., Inés Cavelier, Camilo Rodríguez Ramírez and Santiago Mora, 1989, Los alfareros de la Amazonia: el caso de Araracuara. In *Memorias del Simposio de Arqueología y Antropología Física. V Congreso Nacional de Antropología, Villa de Leyva*. Serie Memoria y Eventos Científicos ICFEs, ICAN, Universidad de Los Andes, Bogotá.
- Hilbert, Peter P., 1968, *Archäologische Untersuchungen am Mittlern Amazonas*. Dietrich, Berlin.
- Lathrap, Donald W., 1958, The cultural sequence at Yarinacocha. *American Antiquity* 23 (4): 379–388.
- , 1970, *The Upper Amazon*. Praeger, New York.
- , 1976, Radiation: the application to cultural development of a model from biological evolution. In *The Measures of Man*, edited by E. Giles and E. J. Frieländer, pp. 494–532. Peabody Museum Press, Cambridge, MA. [Original manuscript written in 1956].
- , 1977, Our Father the Cayman, Our Mother the Gourd: Spinden revisited or a unitary model for the emergence of agriculture in the New World. In *Origins of Agriculture*, edited by Charles A. Reed, pp. 713–751. Mouton Press, The Hague.
- , 1984, Review of “The Origins of Agriculture: An Evolutionary Perspective.” *Economic Geography* 60: 339–344.
- , Angelina Gebhart-Sayer, and Ann M. Mester, 1985, The roots of the Shipibo art style: three waves on Imiríacocha, or there were “Incas” before the Incas. *Journal of Latin American Lore* 11(1): 31–119.

- _____ and José R. Oliver, 1987, Agüertio: el complejo policromo más antiguo de América en la confluencia del Apure y Orinoco. *Interciencia* 12 (6): 274–289.
- Lehman, Johannes, Dirse Kern, Bruno Glasser, and William Woods (eds.), 2003, *Amazonian Dark Earths: Origin, Properties, Management*. Kluwer Academic Publishers, Dordrecht.
- Llanos Chaparro, Juan M., 1997, Artefactos de molienda en la región del medio río Caquetá en la Amazonia colombiana. *Boletín de Arqueología* 12 (2). Fundación de Investigaciones Arqueológicas Nacionales. Banco de la República, Bogotá.
- Meggers, Betty J., 1954, Environmental limitations on the development of culture. *American Anthropologist* 56: 801–824.
- _____, 1971, *Amazonia: Man and Culture in a Counterfeit Paradise*. Aldine, Chicago.
- _____, 1996, *Amazonia: Man and Culture in a Counterfeit Paradise*. Revised Edition. Smithsonian Institution Press, Washington, D.C.
- _____, 2001, The continuing quest for El Dorado: round two. *Latin American Antiquity* 12 (3): 304–325.
- Miller, Eurico T., 1987, Pesquisas arqueológicas paleoindígenas no Brasil ocidental. In *Investigaciones Paleoindias al Sur de la Línea Ecuatorial*, edited by Lautaro Núñez and Betty J. Meggers. *Estudios Atacameños* 8: 37–61.
- _____, 1992, *Arqueologia nos Empreendimentos Hidroelétricos da Eletronorte: Resultados Preliminares*. Eletronorte, Brasília.
- Mora, Santiago, 2003, Archaeobiological methods for the study of Amazonian dark earths. In *Amazonian Dark Earths: Origin, Properties, Management*, edited by Johannes Lehmann et al., pp. 205–225. Kluwer Academic Publishers, Dordrecht.
- _____, Luisa F. Herrera, Inés Cavellier and Camilo Rodríguez Ramírez, 1991, *Cultivars, Anthropic Soils and Stability: A Preliminary Report of Archaeological Research in Araracuara, Colombian Amazonia*. University of Pittsburgh Latin American Archaeology Reports, No. 2. Pittsburgh.
- Myers, Thomas P., 2004, Dark earth in the upper Amazon. In *Explorations in Amazonian Dark Earths*, edited by B. Glasser and W. Woods, pp. 67–94. Springer, New York.
- Neves, Eduardo G., 1998, Twenty years of Amazonian archaeology in Brazil (1977–1997). *Antiquity* 72 (277): 625–632.
- _____, 1999, Changing perspectives in Amazonian archaeology. In *Archaeology in Latin America*, edited by Gustavo G. Politis and Benjamin Alberti, pp. 216–243. Routledge, London.
- _____, James B. Petersen, Robert N. Bartone, and Carlos A. da Silva, 2003, Historical and sociological origins of Amazonian dark earths. In *Amazonian Dark Earths: Origin, Properties, Management*, edited by Johannes Lehmann et al., pp. 29–50. Kluwer Academic, Dordrecht.
- Oliver, José R., 1991, Donald W. Lathrap: Approaches and contributions in New World archaeology. *Antropológica* 75–76: 5–60. Fundación de Ciencias Naturales La Salle, Caracas.
- _____, 2001, The archaeology of forest foraging and agricultural production in Amazonia. In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 50–85. British Museum Press, London.
- Oyuela-Caycedo, Augusto, 1995, Rocks versus clay: the evolution of pottery technology in the case of San Jacinto-1, Colombia. In *The Emergence of Pottery: Technology and Innovation in Ancient Societies*, edited by William K. Barnett and John W. Hoopes, pp. 133–145. Smithsonian Institution Press, Washington, D.C.
- _____ and Renée M. Bonzani, 2005, *San Jacinto I: A Historical-Ecological Approach to an Archaic Site in Colombia*. The University of Alabama Press, Tuscaloosa.
- Petersen, James B., Eduardo G. Neves, and Michael J. Heckenberger, 2001, Terra preta and prehistoric Amerindian occupation in Amazonia. In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 86–105. British Museum Press, London.
- Pearsall, Deborah M., 1995, Domestication and agriculture in the New World tropics. In *Last Hunters-First Farmers: New Perspectives on the Prehistoric Transition to Agriculture*, edited by T. Douglas Price and Anne Birgitte Gebauer, pp. 157–192. School of American Research Press, Santa Fe.
- Pereira, Edithe, 2001, Testimony in stone. In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 214–229. British Museum Press, London.
- Piperno, Dolores R. and Deborah M. Pearsall, 1998, *The Origin of Agriculture in the Lowland Neotropics*. Academic Press, New York.
- Politis, Gustavo G., 1996, *Nukak*. Instituto Amazónico de Investigaciones Científicas SINCHI, Bogotá.

- _____, 1999, Plant exploitation among the Nukak hunter-gatherers of Amazonia: between ecology and ideology. In *The Prehistory of Food*, edited by Chris Gosden and Jon Hather, pp. 99–126. Routledge, London.
- _____, 2001, Foragers of the Amazon: the last survivors or the first to succeed? In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 27–49. British Museum Press, London.
- _____, and Nicholas Saunders, 2002, Archaeological correlates of ideological activity: food taboos and spirit-animals in an Amazonian hunting and gathering society. In *Consuming Passions and Patterns of Consumption*, edited by Preston Miracle and Nicki Miller, pp. 113–130. MacDonald Institute for Archaeological Research Monographs, University of Cambridge.
- Posey, Darrell A., 1994, Environmental and social implications of pre- and postcontact situations on Brazilian highlands: the Kayapó and a new Amazonian synthesis. In *Amazonian Indians: From Prehistory to the Present*, edited by Anna C. Roosevelt, pp. 271–286. The University of Arizona Press, Tucson.
- Prous, André, 1991, *Arqueologia Brasileira*. Editora da Universidade Nacional de Brasília, Brasília.
-  Reichel-Dolmatoff, Gerardo, 1996, *The Forest Within: The World-View of the Tukano Amazonian Indians*. Themis Books, London.
- Rindos, David, 1980, Symbiosis, instability, and the origins and spread of agriculture: a new model. *Current Anthropology* 21 (6): 751–752.
- _____, 1984, *The Origins of Agriculture: An Evolutionary Perspective*. Academic Press, New York.
- _____, 1989, Darwinism and its role in the explanation of domestication. In *Foraging and Farming: The Revolution of Plant Exploitation*, edited by D. R. Harris and G. Hillman, pp. 27–41. Unwin Hyman, London.
- Roosevelt, Anna C., 1980, *Parmana: Prehistoric Maize and Manioc Subsistence along the Amazon and the Orinoco*. Academic Press, New York.
- _____, 1991, *Moundbuilders of the Amazon: Geophysical Archaeology on Marajó Island, Brazil*. Academic Press, San Diego.
- _____, 1995, Early pottery in the Amazon: twenty years of scholarly obscurity. In *The Emergence of Pottery: Technology and Innovation in Ancient Societies*, edited by William K. Barnett and John W. Hoopes, pp. 115–131. Smithsonian Institution Press, Washington, D.C.
- _____, 1997a, *The Excavations at Corozal, Venezuela: Stratigraphy and Ceramic Seriation*. Yale University Publications in Anthropology, No. 83. Department of Anthropology and the Peabody Museum, Yale University, New Haven.
- _____, 1997b, The demise of the Alaka initial ceramic phase has been greatly exaggerated: a response to D. Williams. *American Antiquity* 62 (1): 353–364.
- _____, 1998, Ancient and modern hunter-gatherers of lowland South America: an evolutionary perspective. In *Advances in Historical Ecology*, edited by William Balée, pp. 191–212. Columbia University Press, New York.
- _____, 1999, The maritime, highland, forest dynamic and the origins of complex culture. In *The Cambridge History of the Native Peoples of the Americas, Vol. III: South America, Part 1*, pp. 264–349, edited by Frank Salomon and Stuart B. Schwartz. Cambridge University Press, New York.
- _____, R. A. Housley, M. Imazio da Silveira, S. Maranca and R. Johnson, 1991, Eighth millennium pottery from a prehistoric shell midden in the Brazilian Amazon. *Science* 254: 1621–1624.
- _____, M. Lima da Costa, C. Lopes Machado, M. Michab, N. Mericer, H. Valladas, J. Feathers, W. Barnett, M. Imazio da Silveira, A. Henderson, J. Silva, B. Chernoff, D. S. Reese, J. A. Holman, N. Toth, and K. Shick, 1996, Paleoindian cave dwellers in the Amazon: the peopling of the Americas. *Science* 272: 373–84.
- _____, John Douglas and Linda Brown, 2002, Migrations and adaptations of the first Americans—Clovis and Pre-Clovis viewed from South America. In *The First Americans—The Pleistocene Colonization of the New World*, edited by N. G. Jablonski, pp. 159–223. Memoirs of the California Academy of Sciences, No 27. San Francisco.
- Rouse, Irving, 1978, The La Gruta sequence and its implications. *Unidad y Variedad: Ensayos en Homenaje a José M. Cruxent*, edited by Erika Wagner and Alberta Zucchi, pp. 203–229. Centro de Estudios Avanzados-Instituto Venezolano de Investigaciones Científicas, Caracas.
- Sauer, Carl O., 1952, *Agricultural Origins and Dispersals*. American Geographical Society, New York.

- Schaan, Denise, 2001, Into the labyrinths of Marajoara pottery. In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 108–133. British Museum Press, London.
- Schmitz, Pedro I., 1987, Prehistoric hunters and gatherers of Brazil. *Journal of World Prehistory* 1: 53–126.
- Simões, Mario F., 1981, Colectores-pescadores ceramistas do litoral do Salgado (Pará). *Boletim do Museu Paraense Emilio Goeldi* 78: 1–32.
- Stahl, Peter W., 2002, Paradigms in paradise: revising the standard Amazonian prehistory. In *The Review of Archaeology* 23 (2): 39–51.
- Steward, Julian H. and Louis C. Faron, 1959, *Native Peoples of South America*. McGraw-Hill, New York.
- van der Merwe, N., A. C. Roosevelt, and J. Vogel, 1981, Isotopic evidence for prehistoric subsistence change at Parmana, Venezuela. *Nature* 292: 536–538.
- Vargas Arenas, Iraida, 1981, *Investigaciones Arqueológicas en Parmana: Los Sitios de La Gruta y Ronquín*. Biblioteca de la Academia Nacional de la Historia, Serie Estudios, Monografías y Ensayos, No. 20. Caracas.
- Viveiros de Castro, Eduardo, 1998, Cosmological deixis and Amerindian perspectivism. *Journal of the Royal Anthropological Institute*, n.s. 4 (3): 469–488.
- Zucchi, Alberta, 1992, Linguística, etnografía, arqueología y cambios climáticos: la dispersión de los arawako en el noroeste amazónico. In *Archaeology and Environment in Latin America*, edited by O. R. Ortiz-Troncoso and T. van der Hammen, pp. 223–251. Universiteit van Amsterdam-Instituut voor Pre- en Protohistorische Archeologische, Egges van Giffen, Amsterdam.
- , 1999, El alto Orinoco. In *Arte Prehispánico de Venezuela*, edited by M. Arroyo, L. Blanco and E. Wagner, pp. 22–33. Galería de Arte Nacional, Caracas.
- and Kay Tarble, 1982, Evolución y antigüedad de la alfarería con esponjilla en Agüerito, un yacimiento del Medio Orinoco. *Indiana* 7: 183–199.
- and Kay Tarble, 1984, Los Cedẽoides: un nuevo grupo prehispánico del Orinoco Medio. *Acta Científica Venezolana* 35: 293–309.
- , Kay Tarble, and Jesús E. Vaz, 1984, The ceramic sequence and new TL and C14 dates for the site of Agüerito in the Middle Orinoco, Venezuela. *Journal of Field Archaeology* 11: 155–180.

Agricultural Earthworks on the French Guiana Coast

STÉPHEN ROSTAIN

INTRODUCTION

Ancient raised fields are known in various countries of South America. Among them are the Llanos de Mojos in Bolivia, Lake Titicaca basin in Bolivia and Peru, Lerma in north Argentina, at the mouth of the Guayas River in Ecuador, in the savannas of highland Bogotá and San Jorge River on the Caribbean coast of Colombia, the Llanos of Apure and the middle Orinoco in Venezuela, along the eastern coast of Guyana, on the western and eastern coast of Suriname, and on Marajó Island at the mouth of Amazon River in Brazil (Darch 1983; Denevan et al. 1987). Most of these earthworks are dated in the first millenium AD, but some of them were made as early as 1000 BC.

Thousands of pre-Columbian raised fields surrounded by ditches are located in the coastal zones of the Guianas (Figure 13.1). These agricultural fields were first made by a Barrancoid group in coastal Suriname. Later ones are ascribed to Arauquinoid groups belonging to a cultural continuum settled between Cayenne Island and Berbice River in eastern Guyana. This represents a territory approximately 600km long where raised field technology was intensively used for almost one thousand years before the European Conquest. This paper deals with three main categories of pre-Columbian earthworks, primarily of the western French Guiana coast: raised fields, ditches and ponds, and causeways.

THE LANDSCAPE

The French Guiana coastal zone is part of the large Quaternary sedimentary plain stretching some 1,600 km between the mouth of the Amazon and the Orinoco Delta. It is relatively narrow in French Guiana where it measures between 5 and 40 km wide (Figure 13.1). Outcrops of the rocky shelf emerge only on the French Guiana coast in the shape of small hills

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

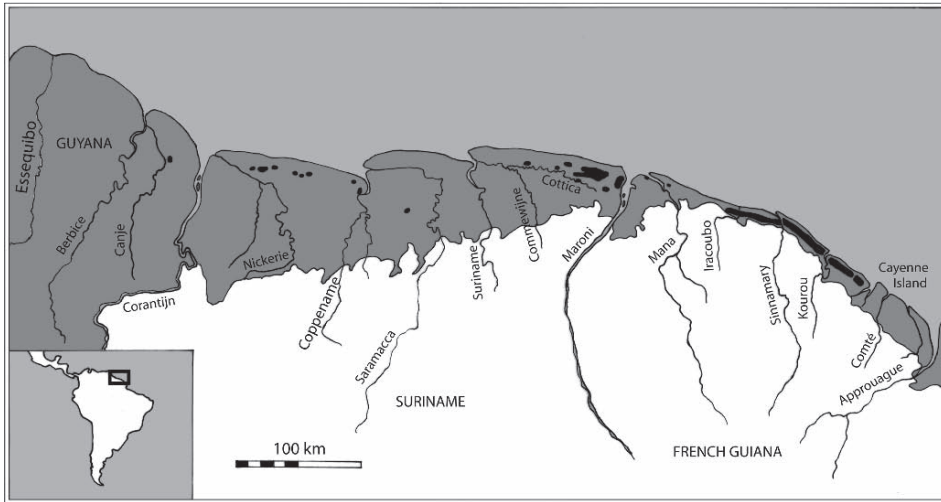


Figure 13.1. Map of the main concentrations of raised fields of the Guianas (shown in black), within coastal zone (shown in grey). (after Boomert 1976: fig. 1 and Rostain 1994: fig. 75).

in Oyapock Bay, Cayenne Island and the lower Kourou. The landscape is a low swampy plain bordered by mangroves on the mud flats along the seashore and by the hinterland at the south. The marshes are cut by narrow and elongated sandy ridges parallel to the seashore that represent old beaches. These dry sandy ridges were preferred locations for the Indians to build their villages.

In 1988–90, numerous small earth mounds in the seasonally flooded savannas were reported and studied (Rostain 1991). They have remarkable characteristics (Figure 13.2): they are always located in flooded or seasonally flooded areas; are frequently interrupted by parallel and perpendicular rows in a grid; organized groups of rounded or rectangular fields are often associated with nearby sandy ridges; the shape of the fields (round, square, rectangular or elongated) seems to be related to the depth of the water; artificial ditches are frequently associated with these fields.

The first question is to determine if these mounds were natural or made by humans. In temperate climates, natural micro-mounds with a grid-like pattern called gilgais can be produced by swelling clay containing a lot of montmorillonite under the influence of strong rain and significant temperature variations. Gilgais are a series of micro-basins and micro-mounds on a flat surface, or micro-valleys and micro-crests of several centimeters to 2 m high running along a slope (Lozet and Mathieu 1986: 94). However, in French Guiana they cannot occur because of the slight temperature difference during the year and because the clay does not contain montmorillonite, but kaolinite, illite, smectite and chlorite. There are sometimes small and low natural micro-mounds along the degraded sandy ridges of French Guiana, but they are never so symmetrically distributed as raised fields are. So there can be no doubt that these fields are earthworks made in pre-Columbian times for agricultural purposes.



Figure 13.2. Raised fields in the Diamant site, east of Kourou River. (Stéphen Rostain)

RAISED FIELDS

Raised fields are classified on the basis of their size, shape and topographical location. This last criterion indicates differences in adaptation to the hydrographical conditions and to the nature of the soil.

Four types of raised field are distinguished: (1) Small rounded raised fields range in size from 30 to 50 cm diameter and in height from 20 to 30 cm. They are almost invisible on the aerial photographs at 1:10,000 and were found during the ground reconnaissance.



Figure 13.3. Medium-sized rounded raised fields in the Diamant site, east of Kourou River. (Stéphen Rostain)

They cover the entire surface of the seasonally flooded savannas, which are totally dry in August. (2) Medium-sized raised fields are rounded, square or rectangular (Figure 13.3). Their size ranges from 1.5 to 3 m diameter and 20 to 30 cm high. They occur in large clusters. Today, they are sometimes under forest cover and it is not possible to see them on the aerial photographs. They were raised in open areas but vegetation has grown on these areas since the Indians left. (3) Large raised fields range in size from 2 to 5 m diameter and from 30 to 100 cm height (Figure 13.4). These raised fields, generally rounded-off, are found around Kourou and Sinnamary, but they are more square or rectangular west of Cayenne Island. They are clearly visible on aerial photographs. This type of raised field is characteristic of more flooded areas and their sizes are smaller in the deepest swamps. Such raised fields are also found in eastern Suriname. (4) Ridged fields are distinguished from the other raised fields by being very long. They are elongated and narrow, measuring between 1 and 3 m wide, 5 to 30 m long and 30 to 80 cm high (Figure 13.5). They follow the slope between the sandy ridges and the swamp, and their distribution is related to the altitude and the water level. At the foot of the Quaternary sand ridges, elongated raised fields are positioned in the direction of the slope to allow easy drainage. Near the top of the sand ridges, the ridged fields are arranged perpendicular to the slope for optimal water retention. These raised fields also occur in eastern Guyana and in Suriname.

In Suriname, two types of raised fields are distinguished: regular and irregular ones. On the eastern coast and in some areas of the western coast, the regular raised fields are rounded-off rectangular to square. Their size ranges from 3 to 4 m wide, 4 to 30 m long and 50 to 100 cm high. On the western coast, irregular raised fields are located south of the artificial Hertenrits residential mound. They are distributed arbitrarily or arranged in groups of 2 to 10. They are rounded-off rectangular to oval, measuring between 3 and 6.5 m wide, 8 to 140 m long, with an average of $4\text{--}5 \times 20\text{--}30\text{ m}$ (Boomert 1976).

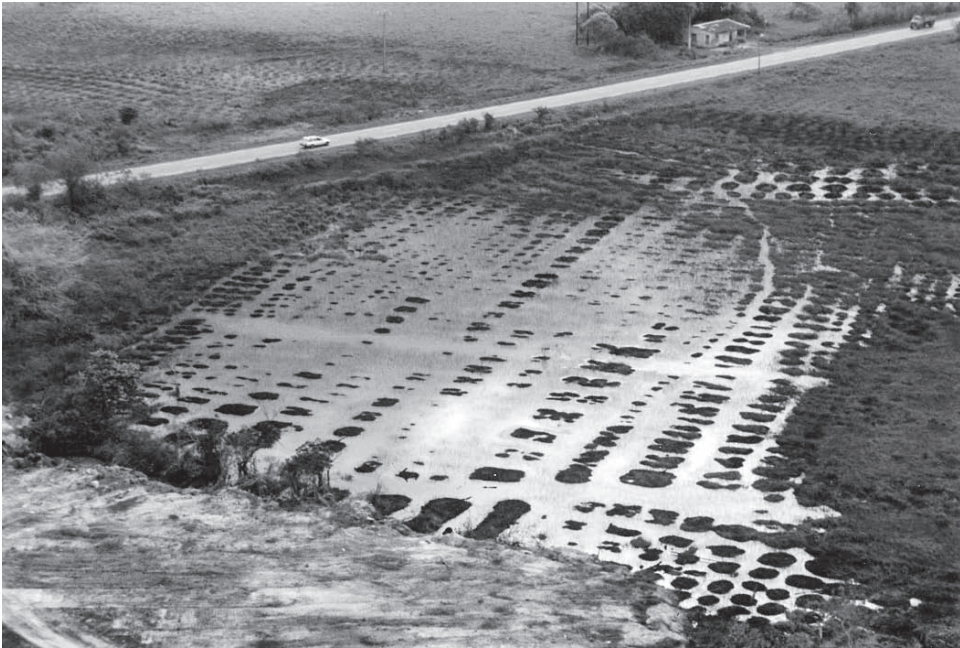


Figure 13.4. Large rectangular and rounded raised fields in the Maillard site, between Kourou River and Cayenne Island. (Stéphen Rostain)



Figure 13.5. Ridged fields in the Diamant site, east of Kourou River. These elongated raised fields measure 1 to 3 m wide, up to 30 m long and 30 to 80 cm high. (Stéphen Rostain)

In eastern Guyana, 787 rectangular raised fields are distributed in a linear configuration. Their size ranges from 1.7 to 6.9 m wide, 5 to 8.2 m long and 50 to 170 cm high. They are associated with a residential mound along the Canje River (Plew 2005).

Along the French Guiana coast, raised fields are generally arranged in rough squares and, often, the largest are located in the deepest and wettest areas. The raised fields seem to be organized into relatively homogeneous areas that average 0.5 ha each, placed side by side. A precise stereoscopic analysis of aerial photographs combined with field data shows that the raised fields were made and distributed in accordance with differences of water level during the two annual seasons.

In fact, water is the main physical constraint. The location of raised fields between the high and low areas in the landscape suggests a careful selection by the Indians. However, this was not always enough to prevent drowning of the raised fields. For that reason, it was necessary to surround some groups of raised fields by a belt ditch (Figure 13.6). In some cases the checkerboard distribution of the ridged fields also helped control the water level. In some areas, the whole surface of the lower area is covered by raised fields, and in other areas, only the edge of the sandy ridges has raised fields.

A general study of the raised fields reveals the importance of local differences along the French Guiana coast. Four main categories of organization and types of raised fields can be distinguished from west to east (Figure 13.1). In the lower Mana, there is a unique site with perpendicular groups of parallel, ridged fields in a flooded depression (Figures 13.7, 13.8, 13.9). Between the Iracoubo and Sinnamary rivers, savannas are covered by a large number of rounded medium-sized raised fields (Figures 13.10, 13.11). Between the Sinnamary and Kourou rivers, rounded or square raised fields associated with ridged fields are located in the savannas and along the edge of the sandy ridges (Figures 13.2, 13.3, 13.5).

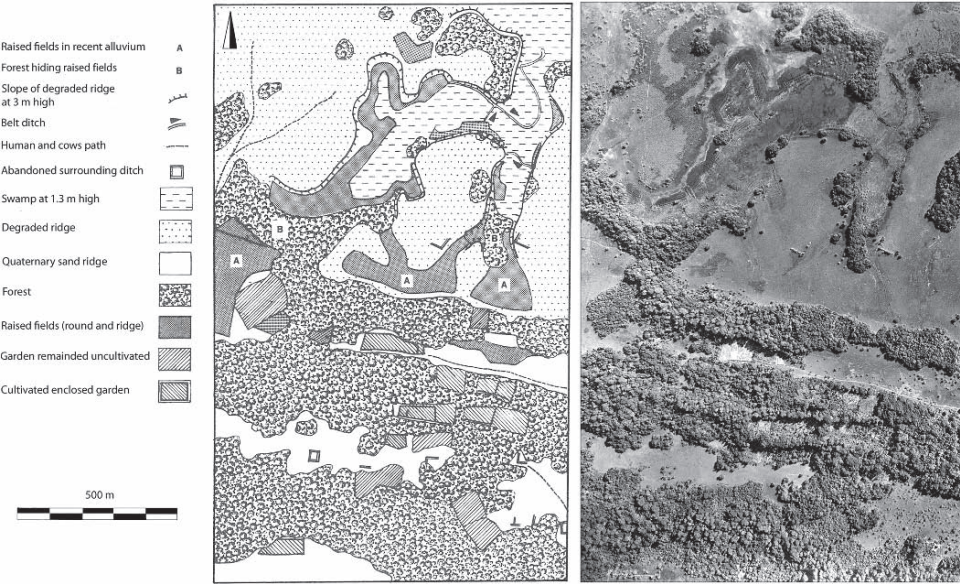


Figure 13.6. Interpretation of an aerial photograph (IGN 003.100 no. 52, 1955, 1/10,000), east of Kourou River showing belt ditches and other features. (Stéphen Rostain)



Figure 13.7. Piliwa site, between the Mana and the Maroni rivers. This site is located in a flooded depression of circa 1.2 kms long and 150 m maximum width, between two sand ridges. The modern Kali'na village of Awala is situated on the southern sand ridge. (Stéphen Rostain)



Figure 13.8. Piliwa site, between the Mana and the Maroni rivers. Nowadays, the ridged fields are above the water level during the dry season but they are under water with only the vegetation emerging during the rainy season. When in use in the past their surfaces were probably dry all year round. (Stéphen Rostain)

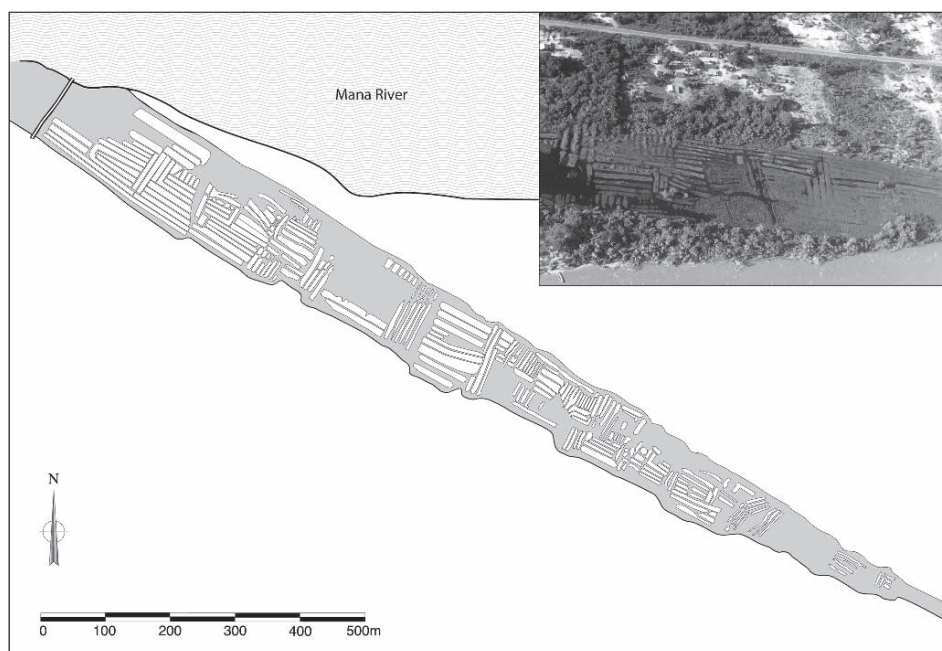


Figure 13.9. Map of the Piliwa raised fields. The site is separated from the river at the west by an artificial causeway. (Drawn by Georges Clément)

Between Kourou River and Cayenne Island, rounded or square raised fields cover the savannas as between Iracoubo and Sinnamary rivers (Figure 13.4). These variations may represent cultural, chronological or technical differences.

Raised fields had two main functions: to create dry soil for cultivation and to concentrate fertile nutrients. Ditches dug in order to raise the fields served as drainage and allowed elimination of noxious gas that can be harmful for plants. Risk of root deterioration, especially for tubers, is in this way considerably reduced. The second function is to improve the soil structure. The most fertile material is concentrated in the raised fields by collecting the top layer of the savanna. The top of the raised fields is covered by secondary, mostly gramineous, vegetation. In addition, the raised field technique aerates the soil, allowing a better growth of the plants because the roots can penetrate deeper. The fields are regularly renovated with a new layer of earth and fertilized by organic matter in it. Physical and chemical limitations can be overcome relatively easily by an efficient water control and a slight improvement of the fertility.

The raised field technique is well adapted to the cultivation of tubers (this is well documented in the Lake Titicaca basin), but also for other crops. Bitter manioc (*Manihot* sp.), maize (*Zea mays*), yam (*Dioscorea* sp.) and sweet potato (*Ipomoea batatas*) could have been the main cultivated plants. When they come to maturity, manioc tubers reach depths of 25–30 cm. They never reach the water level where they could rot because raised fields are always higher than 30 cm, but roots can still reach water during the dry season.

Most of the available archaeological data suggest that maize and bitter manioc were the predominant cultigens on the raised fields of lowland South America (Darch 1983; Denevan et al. 1987; Spencer et al. 1994; Zucchi and Denevan 1979). On the middle Orinoco,



Figure 13.10. Canal in Grand Macoua Savanna, west of Iracoubo River. This canal cut the large raised fields area, connecting the sand ridge to a small water pond. It measures 573 m long and 5.3 m wide. Recent investigations have shown that this canal is modern. (Stéphen Rostain)

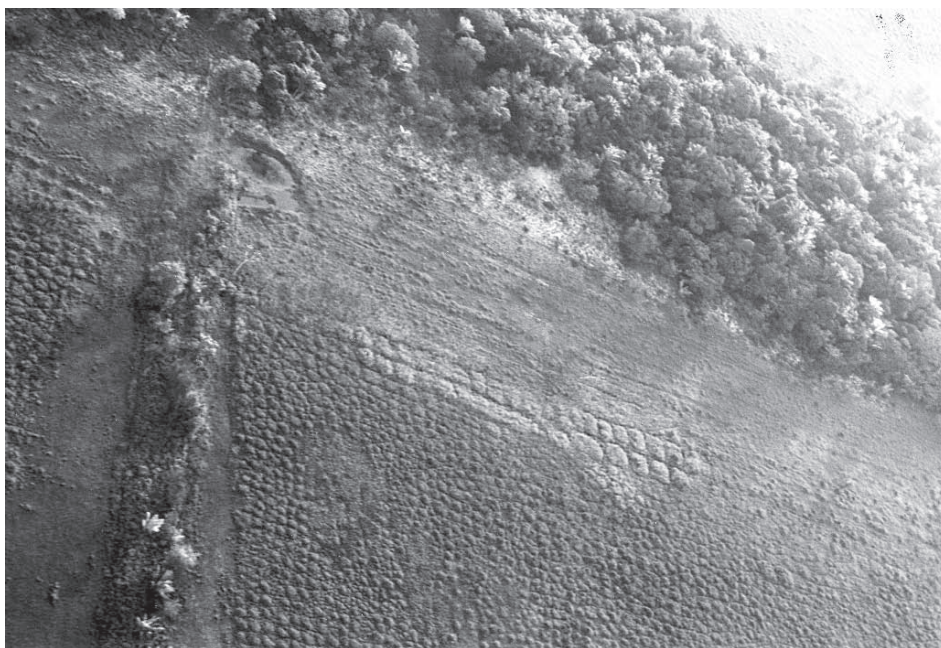


Figure 13.11. Corossy North site, west of Sinnamary River. A causeway bordered by two canals reaches a sand ridge. The canals were dug to raise the causeway, which measures 400 m long and about 5-8 m wide. The savanna is covered by medium-sized raised fields delimited by rows of large raised fields. There is an artificial circular pond at the end of the causeway, on the slope of the sand ridge. The precolumbian settlement was probably located on the sand ridge. (Stéphane Rostain)

it seems that manioc was the first main crop on raised fields, but after ca. AD 800 population growth corresponded to the introduction of maize (Roosevelt 1980). Juan Gumilla (1963) describes a predominance of bitter manioc and maize but also several other plants in the eighteenth century. Indeed, ethnography shows that Amazonian Indians generally cultivate many species in their gardens, including plants for purposes other than eating.

In French Guiana, some artifacts found on archaeological sites associated with raised fields indicate a high consumption of cultivated plants. Ceramic griddles can be used either for maize or manioc. They are particularly abundant in one site between Kourou River and Cayenne Island, suggesting that this settlement could have been specialized in griddle manufacture. Stone manos are also frequent, but metates are more rare. Cassava grating seems to have been done mainly on rough granite slabs, more than with teeth inserted into a wooden board. The lack of nutting stones in the Arauquinoid sites may mean that the inhabitants collected less palm fruits than the Aristé people, living east of Cayenne Island where no raised fields are found. Anyway, all these artifacts are related to the preparation of cultivated plants for eating.

DITCHES AND PONDS

Ditches were made to improve water control. Belt ditches are small and curve water lines of 1–2 m width, perpendicular to the direction in which the water naturally flows. Belt ditches enclose some groups of raised fields. They are relatively narrow at their extremities

and they generally form a pond at the center. These ditches prevented too much water from approaching the raised fields during the rainy season, and then became water reserves during the dry season.

Canals are straight and regular ditches, larger than belt ditches, located near the raised fields (Figure 13.10). They measure about 2 m wide and they can have a length of 150 m. They drained excess water and sometimes emptied into water tanks or fishponds. Some of them are exceptionally long and could have served for canoe travel. For example, there are two long canals near the Mana River (Cornette 1987). One of them measures about 2 km long, 3 m deep, 4 m wide at the bottom and 21 m wide at the top. The modern Kali'na Indians of Awala village mention that in the past these canals served to connect the settlements of the lower Mana. Similar very long canals are also found in Suriname, running perpendicularly from a sand ridge, and often connecting to a raised fields complex (Boomert 1976).

Ponds were sometimes dug near a sand ridge or in the middle of a swamp. They are generally rounded or irregular and their diameter does not exceed 10 m. It is probable that they were used as water tanks and fishponds.

CAUSEWAYS

Causeways are oriented in north-south direction and generally cut through the swamps, connecting two west-east sand ridges or one sand ridge to the coastal shore (Figure 13.11). West of the Kourou River, there are three causeways of 330 to 620 m length and 5 m maximum width. It is probable that these causeways were used to reach the shore easily from the interior. In the Corossony North site, west of Sinnamary River, another raised pathway 400 m long and 5–8 m wide connects two sand ridges (Figure 13.11). The two canals that formed the banks of it were dug to raise the pathway. At the southern end, a round pond was dug into the slope of the sand ridge.

ETHNOGRAPHIC PERSPECTIVES ON ANCIENT RAISED FIELDS

The author studied raised fields during two archaeological projects in 1988–91 (Rostain 1991, 1995) and in 2003–05 (Rostain and Versteeg 2003). First, aerial surveys were made with U.L.M. (photography from an ultra-light module) to identify the raised fields clusters. Then, the entire French Guiana coastal area was studied by stereoscopic analysis of about 1,500 aerial photographs. Raised fields are generally easy to detect by stereoscopy unless they are hidden by alluvium or by the forest. East of Cayenne Island there are colonial polders (wetland drained for cultivation; this technique was used extensively by the Dutch in the Suriname coastal plain), but no pre-Columbian raised fields. They are in the coastal area west of Cayenne Island, and they continue further west into Suriname. The analysis resulted in a complete map of the earthworks along the 200 km of the western coastal area (Rostain 1994) with detailed stereoscopic interpretation of several specific areas (Figure 13.6). These studies involved cooperative fieldwork with earth sciences specialists in pedology, geomorphology, hydrology, botany and topography.

Stereoscopic interpretation of aerial photographs helps to understand the human impact on the landscape. For example, photographs IGN 003.100 n° 52 and 53 of 1955 at

1:10,000 show ancient as well as recent human modifications (Figure 13.6): pre-Columbian raised fields are located between the degraded sandy ridges at about 3 m high and the swamp at about 1.3 m high, meaning the intervening surface is not too wet and not too dry. In B areas (Figure 13.6), raised fields are under the forest. It is very probable that they were constructed in the swamp. After their abandonment, alluvium (clay) was deposited and forest grew on the raised fields. On the upper slope, there are ridged fields made parallel to the slope in order to retain water, and large rounded raised fields are in the swamp. On a surface of about 5 ha to the north, raised fields are distributed in homogeneous groups of one-half ha each, which might represent areas cultivated by one family. Belt ditches are perpendicular to the retreat of flood waters. They were probably used to keep the excess water from the inundation of the swamp during the rainy season. In this manner, raised fields were protected from flooding as well as from pollution by external elements. In A areas (Figure 13.6), raised fields are partially hidden in recent alluvium from the raised fields themselves, or from the sandy ridges. A general flattening of the relief is seen in these areas.

Recent Creole remains are visible only on higher ground (Figure 13.7). A dozen gardens are located on the sandy ridges. Some of them, recently abandoned, are colonized by dense secondary vegetation. Other gardens are in full operation and enclosed to prevent cattle intrusion. The pathways on the sandy ridges are made by the cattle that come to graze. The square surrounding ditches were no longer in use when the photograph was taken. Those located near the flooded areas allowed an easy water supply. It is obvious that the modern inhabitants do not cultivate the seasonally flooded savanna and even avoid crossing these areas.

Two factors explain why some raised fields are under water today, or covered by forest: clay deposits and lack of maintenance after their use. Also, recent human activities in coastal areas have influenced and changed the landscape. For example, significant differences exist between the 1955 and 1987 aerial photographs east of Kourou River. In 1955, several rows of raised fields, belt ditches and one canal were clearly visible in the swamp at the edge of degraded sandy ridges. In 1987, they were completely invisible. U.L.M. flights over them confirm their disappearance. If these structures were visible during previous centuries, it is surprising that we cannot see them anymore now. Modern landscape changes are, of course, responsible. A dike was recently built across the savanna to connect two roads. This raised pathway significantly modified the hydrological system, allowing clay deposits to obliterate the pre-Columbian earthworks. Similar observations have been made in other areas between Cayenne Island and the Maroni River. Comparable destruction has occurred in western coastal Suriname (Werkhoven and Versteeg 1980): the construction of an east-west road in 1964 modified the natural drainage. The swamp to the south of the road was no longer subject to tidal intrusion and changed into a fresh-water zone. To the north, the road impeded the fresh-water from the south, so more sediment with salt-water came from the sea, obliterating the raised fields. Comparison of 1947 and recent aerial photographs clearly shows the destruction of many raised fields.

The second reason for the submersion of some raised fields is the absence of maintenance after their abandonment. Even if there are few erosion events in the savannas, rain can damage the structures. For example, west of Cayenne Island, raised fields are often split. This kind of destruction is enhanced by fires, which are lit each year in the savannas by modern farmers. Without the protective vegetation, a general flattening process occurs because the earth of the raised field ends up in the surrounding ditches when

heavy rain begins. Maintenance of the raised fields requires cleaning out the ditches and depositing what is removed on top of the fields at regular time intervals. For this reason, raised fields in the wettest savannas are generally better preserved than those in the driest areas, where periodic burning followed by heavy rain is very destructive.

HISTORIC PERSPECTIVES ON RAISED FIELDS FARMERS

The great distribution of the raised fields on the French Guiana coast provokes some skeptics to argue that they were created by the Europeans after the Conquest. Certainly, with five hundred years of slavery and forced labor of convicts, the French had much labor with which to construct vast areas of raised fields. However, building or using raised fields is never reported in French Guiana during colonial times. Moreover, it was the general belief that “the flooded savannas do not seem suitable for cultivation” (Lescallier 1799: 51; author’s translation).

Until the end of the eighteenth century, only slash-and-burn cultivation was practiced in the highlands of French Guiana because “its first settlers, frightened by the enormous abundance of the rains and the conditions of the lowlands, always very moist and sometimes completely flooded, decided all in favor of the hills or highlands, a protection from this kind of recurrent deluge” (Lescallier 1799: 53–54; author’s translation). The low coastal plain was cultivated later under the influence of the civil engineer Samuel Guisan who taught residents how to dig polders. Essentially, they are located between Oyapock River and Cayenne Island, for very few polders were made west of Cayenne.

Between 1851 and 1945, many prisoners labored on works between Maroni River and Cayenne Island, but they mainly built the coastal road and did not promote cultivation in the area. Colonial archives show that Europeans almost never farmed the swamps of French Guiana. In the same way, polders were only constructed for agriculture by the Dutch in the coastal area of Suriname, where many raised fields are located. These data prove that the Indians made raised fields before the Conquest; raised fields were never used by the Europeans.

Some historical records describe Indian agriculture on raised fields in the seasonally flooded savannas of South America, and even in the Caribbean. For example, when the Spanish arrive at Hispaniola in the sixteenth century, the northern plains and the flooded valleys of the center of the island were intensively cultivated with drained fields (Dreyfus 1981). In 1536 Juan de Castellanos witnessed camellones (ridged fields) and calzadas (causeways) in the Venezuelan Llanos, and in 1647 Fray Jacinto de Carjaval mentions earthworks (cited by Zucchi and Denevan 1979). In the eighteenth century Juan Gumilla (1963) met Otomac Indians who cultivated on raised fields in the várzea at the confluence of the Orinoco and Apure rivers.

In the seventeenth century, the Palikur of the northern Amapá still numbered 1200 but controlled less than 150 km² of land for shifting cultivation. This surface area was too small to provide enough food for the group so they made large raised fields in the swamp, where they cultivated for several years. Their needs fell with population decline, so the size of the raised fields declined, to become little rounded fields of 80 cm diameter and 30–40 cm high, and rectangular ridged fields of 200 × 50 cm, surrounded by a ditch for drainage. Their primary cultigen was bitter manioc and secondarily yams (*Dioscorea trifida*). This technique was abandoned at the end of the nineteenth century (Grenand 1981).

DEMOGRAPHIC ISSUES

Ethnohistorical and archaeological data from various countries in South America show that flooded savannas or swamps were generally cultivated under demographic pressure, when slash-and-burn agriculture on higher ground became insufficient. For example, the numerous Creoles' gardens that can be seen on the sandy ridges on the aerial photographs show how a small number of people can occupy and use up the high areas of the coastal plain. At the end of the eighteenth century, soil exhaustion and leafcutter ant (*Atta* spp.) infestation in the hills of Cayenne Island forced people to seek new land for cultivation. For that reason, Europeans began to make polders in the marshes east of Cayenne Island.

Construction, maintenance, and cultivation of raised fields require well-organized communal work. Furthermore, specialized groups probably carried out such labor under the leadership of a central authority because the management of hydrological works requires precise planning. It is difficult to evaluate the demography of the raised field builders because the fields may have been used for longer or shorter periods of time. However, the extension and the number of raised fields suggest significant population growth on the coast. People living in the villages on the sandy ridges did the work necessary to build raised fields and causeways. Sedentarism was possible thanks to an abundant coastal fauna and to a permanent agricultural production system. Looking at population density in other cultivated tropical lowlands and supposing that the western coastal plain of French Guiana was uniformly inhabited and that raised fields were cultivated permanently, population density could have been 50–100 persons/km² (Jean Hurault in Rostain 1991). That implies that approximately 200,000 people might have lived on the western French Guiana coast at this time. Such numbers are not surprising. In the lower San Jorge River in Colombia 500,000 ha of drained fields have been identified. On the basis of surface area of residential platforms a population density of 160 persons/km² is estimated between AD 200 and 900 (Plazas and Falchetti in Denevan et al. 1987).

One site is particularly interesting for estimating the number of persons relying on raised fields production. The Piliwa group is located at the extreme west of the French Guiana coast, on the left bank of the Mana mouth (Figure 13.1). Ridged fields are distributed in parallel and perpendicular groups in a flooded depression 1200 × 50–150 m between two sand ridges parallel to the river bank (Figure 13.7). The modern Kali'na village of Awala is located on the southern sand ridge, extending to the west along the river beach. The archaeological site is probably located at the same spot. Ridged fields are nowadays under water during the rainy season, but they emerge during the dry season (Figure 13.8). This site is isolated from other raised fields complexes (Figure 13.1), so it can be assumed that only one village cultivated these raised fields. The surface of all the ridged fields is 90,371 m², or 90 ha, which represents about three-quarters of the whole surface of the depression (Figure 13.9).

There is a large variation in the average of the cultivated surface for one consumer among the Amazonian groups (Descola 1986 synthesizing various references): 405 m² among the Yanoama (Niyayoba-Teri); 607 m² among the Yanoama (Jorocoba-Teri); 810 m² among the Cubeo; 900 m² among the Central Yanomami; 1,371 m² among the Achuar; 1,970 m² among the Siona-Secoya; 2,632 m² among the Kuikuru.

In French Guiana, the average surface cultivated by the slash-and-burn technique in the forest by one family shows few variations among the different modern groups (Gely 1984): 0.33 ha for the Kali'na of the lower Mana; 0.42 ha for the Wayana of the upper Maroni; 0.51 ha for the Wayãpi of the upper Oyapock; 0.75 ha for the Palikur of the lower Oyapock; 0.81 ha for the Boni (Maroons) of the lower Maroni.

In conclusion, the garden size for one family must reach between 0.5 and 0.8 ha in order to achieve self-sufficiency for one year. A larger size allows farmers to produce surplus food for trade (Gely 1984).

It must be noted that the productivity of raised fields was probably much greater than with shifting cultivation. For instance, in the state of Barinas in the Venezuelan Llanos, a modern farmer using pre-Columbian drainage to cultivate maize, beans, manioc and other crops got two successful harvests of maize each year, which indicates the potential of the drained fields technique for regular double cropping (Spencer et al. 1994). On the middle Orinoco, modern Karinya use a highly productive agriculture on drained fields requiring only about 0.39 ha per household (Denevan and Schwerin 1978).

On the basis of these various data, it can be suggested that between 500 and 1000 persons could have lived from the production of the 90 ha of the Piliwa ridged fields.

BARRANCOID AND ARAUQUINOID PEOPLE

The final issue to discuss is that of the mound builders themselves. In fact, it is almost impossible to identify them by direct excavation of the raised fields because even if a few sherds are occasionally found in the fields, their presence is insufficient to prove anything. There is, however, a remarkable find that was made in the swamp near Prins Bernhard Polder, west of the raised fields areas in west Suriname (Versteeg 1985). It is a shovel of hardwood (apparently green ebony, *Bignonaceae*, *Tabebuia serratifolia*), 72 cm long, with a flattened, curved end and a broken cylindrical handle. Similar wood shovels still exist in some Amazonian groups (Rostain 1994). This tool, probably used to make or maintain the earthworks, yielded a Late Arauquinoid date of AD 1240–1280 (Versteeg 2003).

The first raised fields were made in Suriname by the Barrancoid builders of the Buckleburg mounds ca. AD 350 (see Chapter 17 in this volume). However, most of the earthworks are associated with Arauquinoid sites in Guyana, Suriname and French Guiana. Along the Guianas coast, Arauquinoid culture spread from the middle Orinoco to the coast of the Guianas (Boomert 1976; Rostain and Versteeg 2004). The first Arauquinoid raised fields were made from ca. AD 700 but they became common and spread along most of the coast up to Cayenne Island between AD 1000 and 1400 (see Chapter 16 in this volume). There is evidence of the emergence of a chiefdom polity on the Guianas coast in this period.

CONCLUSION

Slash-and-burn agricultural technology can be used only for a few years and thereafter it is necessary to clear a new plot. Relatively small groups employ this shifting pattern. When population numbers rise, new solutions must be found. In the low floodplains, raised fields seem to be the best answer. For example, in northern Amapá, when the Palikur became too numerous in the seventeenth century, they adopted a raised field agricultural technique.

Raised field agriculture predominates on the western French Guiana coast between ca. AD 1000 and 1400. Demographic estimates suggest that a village of 500–1000 inhabitants could cultivate the 90 ha of the Piliwa ridged fields in the Lower Mana. Population density could have reached 50–100 persons/km² in areas with raised fields.

Raised fields served to cultivate crops in swamps with good water control and improved soil conditions through aeration of the soil, the mixing of soil horizons, and the augmentation of the organic matter-rich topsoil. Pollen analysis, early historical records and artifacts used for the processing of plants, found in the former villages, suggest that manioc and maize predominated on the raised fields.

The raised fields technique was the best answer to the problem of cultivation in the coastal floodplain of French Guiana. This suggests a remarkable management of the environment by the Indians. During pre-Columbian times, human impact on the forest was considerable. The French Guiana forest had been partially subjected to clearing by slash-and-burn during these last 2,000 years (Tardy 1998) and in Amazonia at least 11.8 % of the rainforest was modified by human activities (Balée 1989). Even though the estimates vary in the different landscapes, it is obvious that most of the coastal landscape of French Guiana was modified by pre-Columbian earthworks. Raised fields are evidence that the Indians were not dependent on their environment but, rather, they dominated and “humanized” their landscape.

ACKNOWLEDGMENTS Thanks to Claude Musynski Delpuech for typesetting the figures, and to Georges Clément for drawing Figure 13.9. At the beginning of this work I was helped greatly by Jean Hurault, a specialist in stereoscopic analysis at the French Institut Géographique National, and an authority on the Indian history of French Guiana. He died in September 2005, and this chapter is dedicated to him.

REFERENCES

- Balée, William, 1989, The culture of Amazonian forests. *Advances in Economic Botany* 7, edited by D.A. Posey and William Balée, pp. 1–24.
- Boomert, Arie, 1976, Pre-Columbian raised fields in coastal Surinam. *Proceedings of the 6th International Congress for the Study of the Pre-Columbian Cultures of the Lesser Antilles*, pp. 134–144. Gainesville.
- Cornette, Alain, 1987, Quelques données sur l’occupation amérindienne dans la région basse Mana, bas Maroni, d’après les sources ethno-archéologiques. *Equinoxe* 24, pp. 70–99. CEGER, Cayenne.
- Darch, J.P. (ed.), 1983, *Drained Field Agriculture in Central and South America*. BAR International Series, 189. Oxford.
- Denevan, William M. and Karl H. Schwerin, 1978, Adaptative strategies in Karinya subsistence, Venezuelan Llanos. *Antropológica* 50: 3–91. Caracas.
- , Kent Mathewson and Gregory Knapp (eds.), 1987, *Pre-Hispanic Agricultural Fields in the Andean Region*. BAR International Series, 359. Oxford.
- Descola, Philippe, 1986, *La Nature Domestique (Symbolisme et Praxis dans l’Ecologie des Achuar)*. Editions de la Maison des Sciences de l’Homme, Paris.
- Dreyfus, Simone, 1981, Notes sur la chefferie Taïno d’Aïti: capacités productrices, ressources alimentaires, pouvoirs dans une société précolombienne de forêt tropicale. *Journal de la Société des Américanistes* LXIV: 229–248. Paris.
- Gely, Anne, 1984, L’agriculture sur brûlis chez quelques communautés d’Amérindiens et de Noirs Réfugiés de Guyane française. *Journal d’Agriculture Traditionnelle et de Botanique Appliquée* XXXI (1–2): 43–70.
- Grenard, Pierre, 1981, Agriculture sur brûlis et changements culturels: le cas des Indiens Wayâpi et Palikur de Guyane. *Journal d’Agriculture Traditionnelle et de Botanique Appliquée* XXVIII (1): 23–31.
- Gumilla, Juan, 1963, *El Orinoco Ilustrado y Defendido*. Biblioteca de la Academia Nacional de la Historia, Caracas.
- Lescallier, Daniel, 1799, *Tableau de Cayenne ou de la Guïane Française*. Tilliard & Fils Libraires, Paris.
- Lozet, Jean and Clément Mathieu, 1986, *Dictionnaire de Science du Sol*. Technique et Documentation, Lavoisier, Paris.
- Plew, Mark G., 2005, *The Archaeology of Guyana*. BAR International Series, 1400. Oxford.
- Roosevelt, Anna C., 1980, *Parmana. Prehistoric Maize and Manioc Subsistence Along the Amazon and Orinoco*. Academic Press, New York.

- Rostain, Stéphen, 1991, *Les Champs Surélevés Amérindiens de la Guyane*. Coll° La Nature et l'Homme, ORSTOM, Cayenne.
- , 1994, *L'occupation Amérindienne Ancienne du Littoral de Guyane*. TDM 129. ORSTOM éditions, Paris.
- , 1995, La mise en culture des marécages littoraux de Guyane à la période précolombienne récente. *Milieu, Sociétés et Archéologues*, edited by Alain Marliac, pp. 119–160. Editions ORSTOM/Khartala, Paris.
- and Aad H. Versteeg, 2003, Recherche sur l'archéologie de la côte occidentale de Guyane. *Journal de la Société des Américanistes* 89 (1): 161–175. Paris.
- and Aad H. Versteeg, 2004, The Arauquinoid Tradition in the Guianas. In *Late Ceramic Societies in the Eastern Caribbean*, edited by A. Delpuech and C. L. Hofman, pp. 233–250. BAR, 1273. Paris Monographs in American Archaeology, No. 14.
- Spencer Charles S., Elsa M. Redmond and Milagro Rinaldi, 1994, Drained fields at La Tigra, Venezuelan Llanos: a regional perspective. *Latin American Antiquity* 5 (2): 95–110.
- Tardy, Christophe, 1998, Paléoincendies Naturels, Feux Anthropiques et Environnements Forestiers de Guyane Française du Tradiglaciaire à l'Holocène Récent: Approche Chronologique et Anthracologique. Thesis in Population Biology and Ecology. Université Montpellier-II.
- Versteeg, Aad H., 1985, The Prehistory of the Young Coastal Plain of West Suriname. *Berichten Rijksdienst Oudheidkundig Bodemonderzoek* 35: 653–750.
- , 2003, *Suriname voor Columbus/Suriname before Columbus*. Libri Musei Surinamensis 1, Stichting Surinaams Museum, Paramaribo.
- Werkhoven, Marga C.M. and Aad H. Versteeg, 1980, The vegetation of four mounds in the coastal plain of Suriname. *Mededelingen Surinaams Museum* 32, pp. 8–37. Paramaribo.
- Zucchi, Alberta and Williams M. Denevan, 1979, *Campos Elevados e Historia Cultural Prehispánica en los Llanos Occidentales de Venezuela*. Universidad Católica Andrés Bello/Instituto de Investigaciones Históricas, Caracas.

The Pampas and Campos of South America

GUSTAVO POLITIS

INTRODUCTION

The pampas and campos of Argentina, Uruguay, and southern Brazil are extensive grasslands located in the eastern part of the South American southern cone (Figure 14.1). Foragers have inhabited this wide area since the end of the Pleistocene; only in Late Holocene times did some groups become horticulturists. How these people lived, the temporal and spatial variability of their basic foraging life during millennia, how some of these groups incorporated horticulture in late times, and how this significantly changed their mode of life, is the subject of this chapter.

In spite of the long tradition of archaeological research in the three countries that comprise this region, the knowledge of the prehistoric past is still extremely uneven, providing a largely incomplete perspective on the indigenous historical trajectories. Some areas, such as the northwestern sector of the pampas and the Parana-Uruguay interfluvial grasslands are unknown due to the absence of systematic research. Therefore, the coverage of this paper will be uneven and will tackle only the main cultural developments in this vast region.

ENVIRONMENT

The major uninterrupted South American grassland stretches from southern Brazil through Uruguay and Argentina. Major physiographic features and indicator plants and animals bind the grassland together over this vast stretch (Soriano et al. 1992) but regional variations occur. Two major subregions are recognized: the campos of southern Brazil and Uruguay (northeast of the Río de Plata) and the pampas of Argentina (southwest of the Río de Plata). Climatic types vary from humid (B2) to the east to dry-subhumid (C1) to the west.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

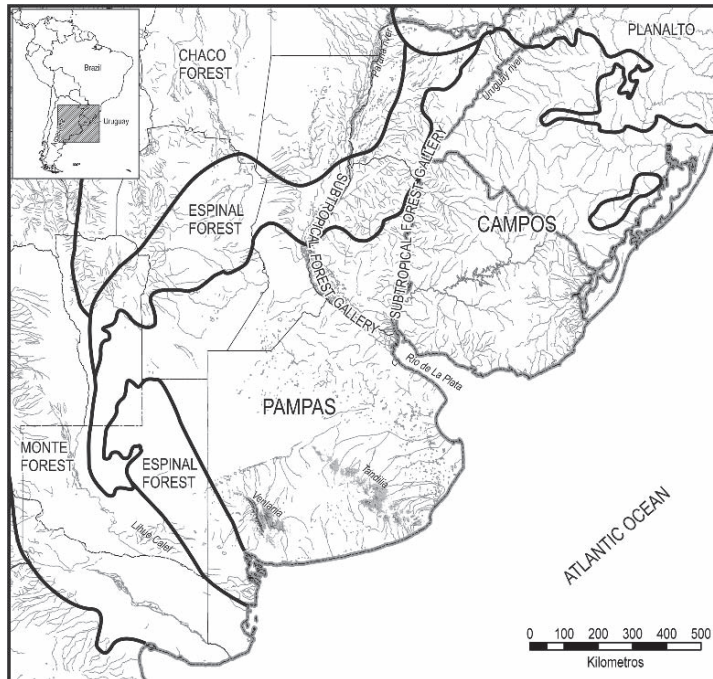


Figure 14.1. Physiographic map of the pampas and campos. (Gustavo Politis)

This region, which comprises more than 700,000 km², is bordered to the northeast by a deciduous tropical and sub-tropical forest (located in higher altitudes, above 700m, in what is called the planalto), to the northwest by the parkland of the Argentine “Mesopotamia” and to the west and south by the xerophitic forests known as espinal and monte phytogeographic provinces. These last two environments are usually partially integrated into pampean archaeology, despite the fact that they are not open grassland. Moreover, although the limits of the grasslands are determined by its contact with woodland vegetation, forest stands occur within the pampas and campos—as gallery forest along the creeks and main rivers (such as the Paraná and Uruguay), encircling marshes in Uruguay or forming isolated groves in southern Brazil. It is important to mention that the lower Paraná and Uruguay produced a particular extremely humid, local environment that favored the penetration of the subtropical forest as far south as 35° Lat.

THE EARLY PEOPLING: LATE PLEISTOCENE-EARLY HOLOCENE

The early traces of humans in the pampas and campos date back to ca. 12,200 BP (all dates are given in radiocarbon years without calibration) and indicate that at the end of the Pleistocene foragers were living at least in the southeastern plains. Between 11,000 to 10,000 BP, archaeological evidence increases and there are abundant data from several areas including the Tandilia mountain range, its neighboring plains (the interserrana area), and the middle Uruguay River. The earliest well-dated site in the region is Arroyo Seco 2

(Politis and Gutierrez in press). It is a large, geologically stratified, multicomponent, Late Pleistocene through Late Holocene site. Numerous occupation events representing camping activities have been uncovered although the identification of discrete occupations has been virtually impossible. The integrity of the deposit is problematic due to the taphonomic agents acting in the site and the perturbation produced by the Early to Middle Holocene human burial into the early levels. However, a cluster of dates on human modified bones from extinct mammals (basically *Megatherium americanum*) associated with unifacial artifacts made on quartzite (a non-local raw material) gave consistent ages between ca. 12,200 to 11,000 BP (Table 14.1).

Two sites, Paso Otero 5 (Figure 14.2) and El Guanaco (Martínez et al. 2004; Bayón et al. 2004), show the variability of the Late Pleistocene archaeological record in the pampas (see Table 14.1). The first site might represent a secondary processing locus of extinct megafauna; two fragments of fishtail projectile points and several flakes were found in association with a variety of burnt bone from several extinct species. The large amount of burnt/calcinated and mixed thermal alteration stage of bones seems to be the result of using megafauna as a food resource and their bones as fuel (Martínez et al. 2004).

In the Tandilia Hills a cluster of sites has been systematically excavated and consistently dated between 11,000 to 10,000 BP (Flegenheimer et al. 2003; Flegenheimer and Bayón 2002; Mazzanti 1999, 2001; Table 14.2). These sites are mostly rock shelters occupied at the end of the Pleistocene, probably by a small number of people who were using fishtail projectile points (Figures 14.3, 14.4). With the exception of some bones of *Eutatus seguini* (giant armadillo), no other megafauna remains were found in these early levels.

These two Late Pleistocene groups of sites would have been generated by the same populations, who were occupying different environments during the year. The sites in the interserrana area would represent aggregation sites, produced by several bands during a period of fusion to perform cooperative activities such as the hunting of large megafauna. Complementarily, the rock shelter sites would be generated by one band or even segments of bands during a time of fission when visiting the hills to perform individual tasks (such as gathering raw material or to hunt small mammals (Politis and Madrid 2001).

In the campos of Uruguay, the occupation of the early hunter-gatherers has been dated ca. 11,000 years BP (Table 14.3). All reported sites are open air sites located in three areas: the Uruguay-Cuareim River (sites Y-58, K-87, DO3 and Pay Paso), the middle basin of the Río Negro, and the Atlantic Coast (i.e., Cerro del Los Burros site) (Suarez and López 2003). In the first area, there is bifacial technology although projectile points have not been found yet and with the exception of a few glyptodon bones, no other faunal association was recovered. In the other two areas, evidence basically consists of fishtail projectile points found in surface sites (only one, Cerro de los Burros, was dated; see Table 14.3).

During the Late Pleistocene the campos of Uruguay and pampas of Argentina shared some common features, such as the fishtail projectile point technology and some other technological traits (i.e., a reduction sequence, see Flegenheimer et al. 2003). This suggests some kind of relation or shared knowledge between these two sub-regions. Moreover, some tools made from reddish silicified limestone, which only seems to outcrop in the Uruguayan campos, are present in most early sites in the pampas. Therefore, Flegenheimer et al. (2003) proposed a scenario that various small groups inhabited different territories in the campos and in the pampas but shared goods and information, both technical and non-technical. They postulate that this long-distance transport (at least 400 to 500 km) should be considered in the framework of a social interaction network.

In the Brazilian campos, an early human occupation (Fase Ibicui) was proposed by E. Miller (1987) based on the supposed association of crude basalt, quartzite choppers and

Table 14.1. Late Pleistocene-Early Holocene sites of the Interserrana area of the pampas.

Site	Lab N°.	¹⁴ C B.P.	Specimen	Exploited Species	Technological sequences	Functionality
Arroyo Seco 2	OxA-4591	12.240 ± 110 *	<i>Glossotherium robustus</i> (1)	<i>Megatherium americanum</i>	Final steps in lithic reduction (sharpening and reactivation); Bifacility	Multiple activity. Base camp
	AA-9049	10.500 ± 90 *	<i>Glossotherium robustus</i> (1)	<i>Hippidion</i> sp.		
	CAMS-58182	12.200 ± 170 *	<i>Megatherium americanum</i> (2)	<i>Equus</i> sp.		
	OxA10387	12.155 ± 70 *	<i>Megatherium americanum</i> (2)	<i>Lama guanicoe</i>		
	AA-62514	11.770± 120*	<i>Megatherium americanum</i> (2)	<i>Ozotoceros bezoarticus</i>		
	TO-1506	7.320 ± 50 *	<i>Megatherium americanum</i> (2)(5)			
	OxA- 9243	12.070±140*	Megamammal bone (cf <i>Toxodon</i>)			
	CAMS-16389	11.750 ± 70 *	<i>Toxodon platensis</i> (3)			
	OxA-9242	11.730± 70 *	Megamammal bone (cf <i>Toxodon</i>)			
	AA-7964	11.590 ± 90 *	<i>Toxodon platensis</i> (3)			
	AA-39365	11.320+/-110*	<i>Equus neogeus</i>			
	AA-7965	11.250 ± 105 *	<i>Equus neogeus</i>			
	OXA-4590	11.000 ± 100 *	<i>Equus neogeus</i>			
	TO-1504	8.890 ± 90 *	<i>Equus</i> sp.			
Paso Otero 5	LP-53	8.390 ± 240	<i>Megatherium americanum</i>		Final steps in sharpening; Fishtail projectile point	Specific activities Hunting blind. Primary and secondary processing locus. Re-occupation
	AA-39363	10.440 ± 100 *	<i>Megatherium americanum</i>	<i>Hemiauchenia</i> sp.		
	AA-19291	10.190 ± 120 *	Mega mammal bone	<i>Megatherium americanum</i>		
	DRI-3573	9.399 ± 116	Sediment organic matter			
	GX-29795	9.560 ± 50	<i>Megatherium americanum</i>			
La Moderna	TO-1507	12.350 ± 370 *	<i>Doedicurus clavicaudatus</i> (4)(5)	<i>Doedicurus clavicaudatus</i>	Obtaining of flakes, trimming and reactivation of edges.	Specific activities Primary processing of <i>Doedicurus</i> .
	TO-1507-2	7.510 ± 370 *	<i>Doedicurus clavicaudatus</i> (4)			
	TO-2610	7.460 ± 80 *	<i>Doedicurus clavicaudatus</i>			
	TO-1507-1	7.010 ± 100 *	<i>Doedicurus clavicaudatus</i> (4)			
	Beta-7824	6.555 ± 160	<i>Doedicurus clavicaudatus</i>			
Campo Laborde	DRI-3012	8.356 ± 65	Sediment organic matter		Final steps in reactivation of instruments.	Specific activities Hunting and primary processing
	DRI-3013	7.448 ± 109	Sediment organic matter			
	AA-55118	8.080 ± 200 *	<i>Megatherium americanum</i>	<i>Megatherium americanum</i>		
	AA-55117	7.750 ± 250 *	<i>Megatherium americanum</i>			

References: (1) Same sample, (2) same sample, (3) same sample, (4) same sample, (5) rejected

*. AMS Date



Figure 14.2. View of the Quequén Grande River where the Paso Otero 5 site is located. Note the typical pampasic grasses on the bank of the river. (Gustavo Politis)

flakes with rolled bones (one of them of *Glossotherium robustus* was dated to 12,770 BP). However, a close analysis of the presented data led Milder (1994) to conclude that the association between bones and artifacts was doubtful. Therefore, the sequence of hunter-gatherer occupation in this sub-region, named the Umbu Tradition, started with what has been called the Fase Uruguai dating between 10,810 and 8585 BP (Table 14.3) (Dias and Jacobus 2003). Most of the sites are open air sites in the middle Uruguay river basin (RS-I-66 Milton Almerida, RS-I-67 Touro Passo 1, RS-I-69 Laranjito). One of the characteristics of the open air sites is the lack of faunal association, which makes it difficult to evaluate the subsistence strategies. In terms of technology, the Uruguai phase has been characterized by small bifacial stemmed chalcedony projectile points associated with side and end scrapers, retouched flakes, and unipolar and bipolar artifacts made on basalt, chalcedony, quartz and chert (Dias and Jacobus 2003).

The time and the causes of the extinction of Pleistocene megafauna has been a subject of discussion and it has been proposed that the pampas is one of the few continental regions where some of these mammals survived (Politis et al. 1995). Two archaeological sites in the pampas show clear evidence of survival of ground sloth and glyptodon until the Early Holocene. One is La Moderna, where a few artifacts and hundreds of flakes of quartz have been found in association with bones of *Doedicurus clavicaudatus* and dated between 7500 to 7000 years BP (Politis et al. 2003). The other is Campo Laborde (Figure 14.5), a site in which bones of giant ground sloth (*Megatherium americanum*) have been recovered associated with a few broken artifacts on the border of an Early Holocene swamp and dated between ca. 8800 to 7800 years BP (see Table 14.1; Mesineo and Politis in press).

For the pampas, Martínez and Gutierrez (2004) proposed for the Late Pleistocene-Early Holocene period a *generalized regional economy*. A broad spectrum of resources (including extinct megafauna) would have been exploited by hunter-gatherers as suggested

Table 14.2. Late Pleistocene-Early Holocene sites of the Tandilia area of the pampas.

Sitio	Lab N°.	¹⁴ C B.P.	Exploited Species	Technological sequences	Functionality
Cerro La China 1	AA-8953	10.804 ± 75 *	without evidence	Distinct manufacturing processes, use, and reactivation. Bifaciality. Fishtail Projectile Point	---
	AA-1327	10.790 ± 120 *			
	AA-8952	10.745 ± 75 *			
	I-12741	10.720 ± 150 *			
Cerro La China 2	AA-8954	10.525 ± 75 *	without evidence	Final steps in manufacturing. Bifaciality Distinct manufacturing processes, use, and reactivation. Bifaciality. Fishtail Projectile Point	Ephemeral occupations related to hunting Multiple activities
	AA-8955	11.150 ± 135 *			
	AA-8956	10.560 ± 75 *			
	AA-1328	10.610 ± 180 *			
El Sombrero Cima	---	---	without evidence	Primary, and secondary sharpening Fishtail Projectile Point	Specific Activities Hunting blind. Equipped. Re-occupation
	---	---			
El Sombrero Abrigo 1	AA-4765	10.725 ± 90 *	without evidence	Preparation of the nucleus and first step reduction	Ephemeral occupations
	AA-4766	10.270 ± 85 *			
	AA-4767	10.675 ± 110 *			
	AA-5220	10.480 ± 70 *			
	AA-5221	8.060 ± 140 *			
Los Helechos	Beta-137747	9.640 ± 40 *	without evidence	Flakes from sharpening	Ephemeral ocupaciones
Cueva Tixi	AA-12130	10.375 ± 90 *	<i>Eutatus siguini</i> <i>Ozotoceros bezoarticus</i> <i>Lama guanicoe</i> <i>Myocastor coypus</i> <i>Lagostomus maximus</i> <i>Dasyus hybridus</i> <i>Chaetophractus villosus</i> <i>Zaedyus pichiy</i> <i>Rhea americana</i>	Distinct processing steps of manufacture and sharpening	Multiple activities
	AA-12131	10.045 ± 95 *			

Abrigo Los Pinos	AA-24045	10.465 ± 65 *	without evidences	Primary and secondary flaking, and sharpening. Fishtail Projectile Point Distinct steps in manufacture and process, and sharpening. Secondary flaking. Final steps in reduction. Final steps in reduction? Fishtail Projectile Points	Camp. Workshop of multi- ple activities Re-use. Reoccupation Multiple activities
	LP-630	9.570 ± 150			
	LP-684	8.750 ± 160	<i>Ozotoceros bezoaricus</i>		
	AA-38098	9.834 ± 65 *	<i>Chaetophractus villosus</i> <i>Zaedyus pichiy</i> without evidence		
Cueva Burucuyá	LP-863	10.000 ± 120	without evidence		Specific activities. Ephem- eral occupations. Specific activities One event.
Cueva La Brava	LP-550	9.670 ± 120	without evidence		Specific activities
Amalia Sitio 2	AA-35499	10.425 ± 75 *	without evidence		

* AMS Date



Figure 14.3. View of the rockshelters of Cerro La Vigilancia in the Tandilia mountain range. (Gustavo Politis)

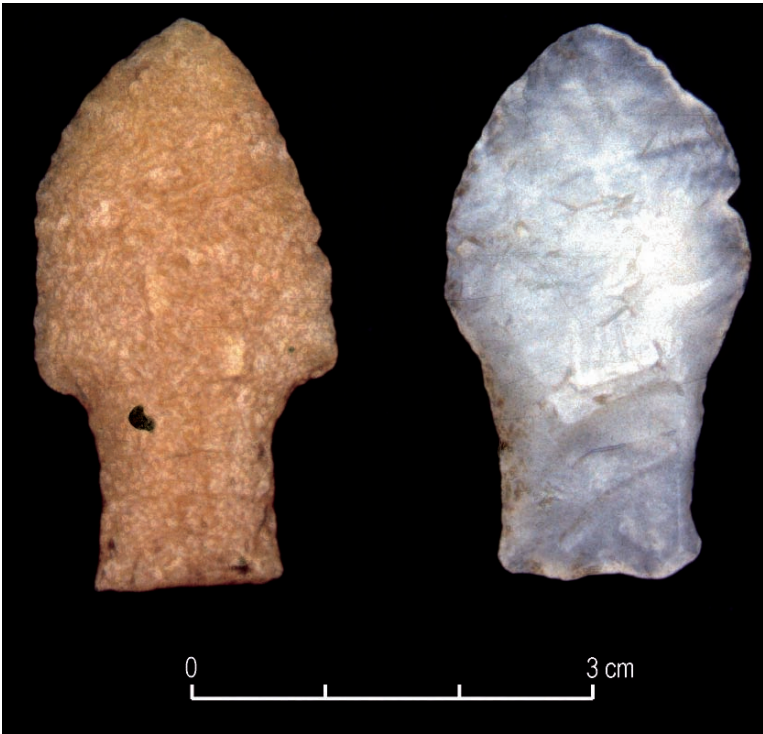


Figure 14.4. Fishtail projectile points from the Cerro La China locality. (photo courtesy Nora Flegenheimer)

Table 14.3. Late Pleistocene-Early Holocene sites of the campos.

Site	Lab N°.	¹⁴ C B.P.	Specimen	Exploited Species	Technological sequences	Functionality
ROU-Y58	Gif-4412	11.200 ± 500	Charcoal	without evidence	Final steps of bifacial reduction and projectile point and maintenance	Specific activities. Lithic reduction. Ephemeral occupation
ROU-K87	KN-2531	10.420 ± 90	Charcoal	without evidence	Bifacial flaking	Multiple activities
ROU-DO3 (Capilca)	Dik-1224	9.320 ± 170	Wood	without evidence	Bifaciality	Base campment
ROU-Pay Paso 1	RT-1445	9.890 ± 75	Charcoal	without evidence	Instrument .	Base campment
	Uru-248	9.280 ± 200	Charcoal	without evidence	Bifaciality and projectile points	
	Beta-156973	9.120 ± 40 *	Charcoal	<i>Glyptodon</i> sp.		
ROU	Uru-246	8.570 ± 150	Charcoal	without evidence		
URUPEZ	Beta-165076	10.690 ± 60	Charcoal	without evidence	Fishtail projectile points	---
RS-I-66	SI-2622	10.810± 275	Charcoal			---
Milton Almeida						---
RS-I-67	N-2519	9.840±105	Charcoal			---
Touro Paso 1	SI-2625	9.230±145				
RS-I-69	SI-2630	10.985±100	Charcoal	without evidence	Unipolar and bipolar Knapping. Bifaces	---
Laranjito	N-2523	10.800±150			Stemmed triangular points	
	N-2521	10.400±110				
	SI-3106	10.240±80				
	N-2522	10.200±125				
RS-I-70	SI-2631	9.620±110	Charcoal			---
Imbaá I	SI-2632	9120±340				
RS-I-72	SI-2634	9450±115	Charcoal			---
Palmito 2						
RS-II-67	SI-3749	9.855±130	Charcoal			---
Pessegueiro	SI-2637	9.595±175				
	SI-2636	8.585±115				
RS-TQ-58	Beta-44739	9.439±360	Charcoal	<i>Ozotocerus, Tapirus, Mazama, Dasyapus</i>	Stemmed triangular points and stemless lanceolate points	---
Garivaldino	Beta-32183	8.290±130				
	Beta-33458	8.020±150				
RS-S-327	Beta-160845	8.800±40	Charcoal	<i>Tapirus, Mazama, Peccari, Myocastor, Dasyapus</i>	Flakes produced in manufacture and maintenance of artefacts	Domestic activities. Redundant ephemeral occupations
Sangão	Beta-154353	7.390±40				

*: AMS date



Figure 14.5. A view of the Campo Laborde site in the Tapalque Creek during excavation. The bones exposed are of *Megatherium americanum*. (Gustavo Politis)

by the presence and diversity of faunal species consumed during this period: among 38 species found in the archaeological record, at least 16 were consumed. Both taxonomic diversity and richness are greater when compared with the following time period (Middle Holocene). A similar pattern seems indicated for the campos, although as it has been summarized, faunal data are scarce.

During the Early Holocene, traces of human occupation also are present in other areas of the pampas and campos. In the southwest pampa, hunter-gatherers, using end-scrapers, some “core-choppers” and abundant crude basalt and chert flakes, occupied the banks of the Río Colorado at ca. 8600 years BP (Gradín 1984). They would represent the first evidence of adaptation out of the grasslands, in the monte fitogeographic province. Two rock shelters, RS-TQ-58 Garibaldino and RS-S-327 Sangão, dated in Early Holocene times, are located on the boundary between the Brazilian campos and the planalto in the Lago Guaíba basin (Table 14.3). Faunal association indicates an economy oriented toward the exploitation of a great variety of medium and small mammals such as deer (*Mazama* and *Ozoteoceros*), tapir (*Tapirus*), armadillo (*Dasypus* and *Euphractus*), peccary (*Pecari*), capibara (*Hydrochaeris*) as well as a great diversity of terrestrial and aquatic gastropods, fluvial bivalves (*Diplodon* sp.), and fish. These two sites show a greater technological variety, which includes another type of projectile point: lanceolate stemless made from chert and chalcedony and artifacts made from bone, shell and teeth. The shared technological style of lithic industries from the sub-region has been interpreted as the result of a model of social organization characterized by a high degree of inter-band interaction, mediated by a high residential mobility in a wide regional territory (Dias and Jacobus 2003; Dias 2004).

At the end of the Early Holocene period, pampean hunter-gatherers began to exploit marine resources and to occupy, at least seasonally, the Atlantic coast. This adaptive pattern may have occurred earlier in the Holocene, but the rise in sea level would have destroyed

the archaeological evidence. The earliest record came from the La Olla 1 and 2 and Monte Hermoso 1 sites located on the beach of the Atlantic coast (Bayón and Politis 1997). The sites are made up of a stratified lacustrine deposit, which corresponds to an inter-dune freshwater lagoon. La Olla 1 and 2 represent the remains of seal processing loci while at Monte Hermoso 1 several hundred human footprints, in four different layers, were preserved and recently exposed due to marine erosion (Bayón and Politis 1997). The position of the cultural assemblages in the matrix, as well as the footprints, suggest that diachronic depositional events occurred within a period of several hundred years. Eleven radiocarbon dates from these sites gave ages from 7920 to 6640 years BP (Bayón and Politis 1997; Fontana 2004).

MIDDLE HOLOCENE TIMES (7000/6500 TO 3000 BP)

During Middle Holocene times, archaeological evidence is still scarce. This period is characterized by environmental changes related to what is known as the Hypsithermal. In the pampas, during this period the sea-level rose above current level at around 7000 BP. However there is no agreement about the magnitude of this rise (between 2.2 to 12 m depending on the author) and the chronology of the maximum ingression (see revisions in Aguirre and Whatley 1995; Melo et al. 2003). Climate conditions were warmer and probably humid during this time period, although short periods of aridity might have occurred during this interval. In the campos the sea level reached the current level at ca. 7000 BP and subsequently reached +5 m at around 6000 BP. After this, it started a progressive fall to the present sea level (Martin and Suguio 1989). At around 5000 to 4500 BP (the post Hypsothermal) there is a period of increased aridity in most areas of this region.

The archaeological record for the Middle Holocene in the pampas is relatively scarce. Paso Otero 1, one of the sites repeatedly mentioned, is probably a natural accumulation of guanaco bones due to water transportation (Gutierrez and Kaufmann 2004). The other sites are basically in the interserrana area (Arroyo Seco 2), the Tandilia Hills (Cueva Tixi and Cerro La China) and Ventania (Avestruz and Caverna El Abra), and the Colorado and Salado-Curacó rivers (Casa de Piedra and Tapera Moreira) (see summary in Politis and Madrid 2001). These sites suggest an economy based on the guanaco. Technology shows few chronological changes through this period but rather a great intra-regional variation. Several types of medium-size triangular stemless projectile points, bola stones, as well as grinding stones are the basic hunting and processing tools and are found in various sites. For this Middle Holocene period, Martinez and Guterrez (2004) proposed the existence of a *specialized regional economy* (this contrasts with the Late Holocene diversification, discussed below).

Among 34 taxa recovered in the archaeological record, only 10 were exploited. The sites of Paso Otero 3 and Nutria Mansa are good examples of this pattern.

In the pampas, the main evidence comes from the multi-component sites of Fortín Necochea and Arroyo Seco 2, both interpreted as open air campsites representing residential bases of hunter-gatherers (Crivelli Montero et al. 1987/88; Politis and Gutierrez in press). In the first site, there is a good Middle Holocene record dated between 6010 BP and 3630 BP. The archaeological sequences of Fortín Necochea and Arroyo Seco 2 indicate the reoccupation of the same localities throughout the Middle Holocene and suggest technological continuity (unifacial artifacts made from quartzite flakes and secondarily with chalcedony and chert flakes—basically side and end-scrapers, stemless triangular

projectile points, mortars and pestles made from granite and granodiorite, bola stones, etc.), a comparable economy (based on guanaco as a principal resource and pampean deer, rhea, and armadillos as secondary or complementary resources), and a similar settlement pattern (re-occupation events on lagoon borders).

One of the best records for the transition between the Early and Middle Holocene is the human burials from Arroyo Seco 2. To date, 45 human skeletons have been uncovered and dated with 19 dates from ca. 7800 to 4500 years BP (Politis et al. in press). The burials occur as both single-individual and multi-individuals of adults and children. The earliest level of inhumation is represented by four burials of skeletons with bifacial triangular stemless projectile point within the bodies and dated between 7800 and 7615 BP (Figure 14.6). A secondary burial with a similar date (ca. 7600 BP), which is the earliest burial of this type in the whole region, was also recovered at the site. Grave goods consisting of marine shell beads and necklaces of canid canines and powdered red ocher occurred in 12 skeletons, indicating an early and complex funerary treatment of the dead. Moreover, the abundance of canid canines in a funerary context and the absence of other skeletal parts of canids in the site suggest that this animal would have had a strong symbolic connotation to mediate the relation between human and supernatural spirits or beings. The date span from the burials (both primary and secondary) of Arroyo Seco 2 suggest the site was used for inhumation for about 3,000 years during the Middle Holocene; use of the site was not continuous but redundant.

The cluster of summarized archaeological evidence does not support the model of Barrientos (2001; Barrientos and Perez 2005) who proposed that a population replacement took place in the southeastern pampas and probably that a new biological population entered the region sometime between 6000 to 5000 BP, after the “emigration or local extinction” of the Early and Middle Holocene population. Although it seems clear that there are some cranio-facial differences between the Middle Holocene and the early Late



Figure 14.6. Human skeleton of Arroyo Seco 2 with two projectile points between the ribs. (Gustavo Politis)

Holocene samples, why these difference should be only the result of two different populations has not been proven. Alternative explanations such as micro-evolutionary processes or changes in the original population due to genetic flux from neighboring peoples have not been explored by the authors. Moreover, other assumptions raised by Barrientos to support his model, such as the lack of secondary burials in Early and Middle Holocene times, have been proven to be incorrect (i.e., the consistent dates of ca. 7600BP for the secondary burial of Arroyo Seco 2). Although it is true that up until today there is less archaeological visibility during the Middle Holocene in the pampas, the available evidence suggests continuity of several patterns (technology, subsistence, burial places, use of space) rather than a disruption, as the local extinction or emigration of the local population would have produced.

In the eastern campos of Uruguay and southern Brazil, the Middle Holocene human occupation is characterized by hunter-gatherer-fishers who specialized in the exploitation of the fruit of the butiá palm (*Butiá capitata*). On the Atlantic coast subsistence was complemented with the hunting of seals and the gathering of mollusks. The first evidence of a shell midden on the coast of Uruguay is the La Esmeralda site, dated to Middle Holocene times, which would suggest an incipient adaptation in the exploitation of marine resources. On the inland grasslands hunting was oriented toward deer and complemented with coypo. Alocthonous siliceous raw material was used to produce distinctive mid-size stemmed triangular projectile points (Bracco et al. 2005; López 2001).

During this period the first evidence of mounds are recorded in the eastern sector of the campos, mostly in the Laguna Merim basin. The mounds, locally called *cerritos de indios* (in Uruguay) or *aterros* (in Brazil), are circular or elliptical earth structures of about 20 to 40 m in diameter and up to 7 m high, which occur isolated (Figure 14.7) or in clusters



Figure 14.7. Areal view of a *cerrito* from the Department of Rocha (Uruguay) during excavation. (photo courtesy José M. López Mazz)

with up to fifty in the same locality (Bracco et al. 2005; López 2001). Radiocarbon chronology indicates that the construction of cerritos involved extensive time periods (in some cases ca. 3,000 years). López identified four phases in the development of the cerritos: (1) an Early and Middle Holocene (ca. 8000 to 5000 BP) pre-cerritos level, represented by “archaic” hunter-gatherers; (2) a first stage of cerritos construction, between 5000 to 4000 BP, when monumentality appeared in the area; (3) a second stage, between ca. 3000 to 1000 BP when the construction of cerritos increased. During this stage pottery came into use (ca. 3000 BP) as well as horticultural practices involving squash, maize and beans (Iriarte et al. 2001); and (4) a final stage with differentiation of patterns and intense funerary activity a few centuries before the European conquest.

The function and construction process of these mounds are currently under strong debate. A few decades ago, Brazilian archaeologists (Schmitz 1976; Schmitz et al. 1991) proposed that mounds were some kind of platform constructed to inhabit seasonal flooded areas by people adapted to this environment. These mounds were associated with what was called the Vieira Tradition, especially with the ceramic phases (Torotama, Vieira and Cerritos) of the Late Holocene hunter-gatherers and would have functioned as “lacustrine hunting camps”. More recently, Uruguayan researchers maintained that the mounds were mainly funerary structures of complex hunter gatherers, taking into account the recurrence of human burials in several of them (Bracco et al. 2005; López 2001, *inter alia*). For Consens (2003) the cerritos correspond to a “Formative” period. For López Mazz (2001) the first structures (ca. 4000 to 3000 BP) seem to be oriented toward marking and ordering the territory and to legitimating the exclusivity of the resources, while after ca. 2500 BP some structures began a specialization toward ceremonial activity and funerary practices. Dillehay (in López 2001) believes that some clusters of cerritos would be part of a planned village associated with middle rank tribal societies. Recently this idea has been supported by Iriarte et al. (2004) who proposed, based on the excavation of the Los Ajos mounds, that as early as 4190 BP the site became a circular plaza village which grew as a result of multiple overlapping domestic occupations associated with a wide range of activities. In this site, as well as in Punta de San Luis, Potrerillo and Isla Larga, Iriarte et al. (2004) found phytoliths and starch grain of squash (*Cucurbita* sp.), maize (*Zea mays*), beans (*Phaseolus* sp.), and *Canna* sp. rhisomes, which indicate an early domestication at ca. 3600 BP. For Iriarte et al. (2004) this cluster of evidence would indicate an independent architectural tradition in lowland South America.

In the rest of the campos, and in the southern planalto the archeological record of hunter-gatherers during the Early and Middle Holocene was subsumed under the concept of Umbú Tradition (Noelli 1999–2000). This concept encompasses a variety of lithic material, which includes some distinctive projectile points and an economy based on hunting, gathering, fishing and mollusk collection. Since nuts of two genera of palms, *Arescastrum* and *Butiá*, have been consistently recovered in these sites, Noelli (1999–2000) proposes that this species would have been “managed” by these populations. The Humaitá tradition was also proposed to integrate a group of sites, basically located in the forest of the *planalto*, with a distinctive technology of big bifacial artifacts, including the curved “clavas” (Rodríguez 2001). However, for some authors both traditions seem to be very similar and differences would be related to site functionally rather than representing two different populations (Hoeltz 1995).

In general terms, the archaeological evidence shows continuity between the Early to Middle Holocene population and intra-regional differentiation. This would be the result of evolutionary and historical processes, which produced different adaptive patterns during

the Early and Middle Holocene. Most researchers (López 2001; Noelli 1999–2000; Iriarte et al. 2004; Politis and Madrid 2001) are interpreting the main changes that occurred in the Middle Holocene as the result of transformation in several dimensions that happened within the Early Holocene populations. This has been the process to explain the emergence of the cerritos and the continuity of the basic adaptive patterns and technology of the hunter-gatherers of the pampa and campos.

THE LATE HOLOCENE DIVERSIFICATION (ca. 3000 TO 500 BP)

During Late Holocene times the process of regional differentiation, which began to become visible during the Middle Holocene, produced a wide variety of historical trajectories and adaptive patterns. In this period the archaeological visibility of the pampas and campos increased significantly, a fact that also suggests a rise in the population density of the region. Moreover, several significant changes occurred, such as reduction in residential mobility and the development of wide—supra-regional—interaction networks, which, along with some important innovations, such as pottery and horticulture, suggest the development of a process of complexity. This process is well exemplified in the cerritos of the eastern campos.

In the pampas, Martínez and Gutierrez (2004) have defined a pattern of *diversification and intensification of areal economies* based on the zooarchaeological record. This record shows an important taxonomic diversity and richness which may have undergone changes toward 1000 BP as a consequence of the establishment of the current ecosystems. Among 72 genera recorded in the sites, 22 were exploited. During this time at least three main subsistence strategies can be identified among hunter-gatherers in the pampas (Figure 14.8): exploitation of the xerophitic forest, exploitation of the open grasslands, and exploitation of rivers and lagoons.

The hunter-gatherers of the xerophitic forest are represented in the upper level of the Casa de Piedra site, in the Tapera Moreira locality and in several sites of the lower Río Colorado. These sites indicate that guanaco was the main prey, while pampean deer, armadillos and rhea were secondary resources. The abundance of grinding stones in these areas suggests that fruit of the xerophitic forest might have been consumed. The upper level of Casa de Piedra indicates stronger similarities with the north Patagonian foragers during Late Holocene times (Gradín 1984). In the Río Salado-Curacó, the upper component (ca. 1200 to 500 BP) of Tapera Moreira reveals some cultural peculiarities when compared with the archaeological record of other areas in the pampas, for example: a multiplicity of pottery types which includes painting and incision and the presence of pottery handles; the presence of engraved plates; the coexistence of medium and thicker stemless projectile points with thin and small projectile points (Berón 2004). It is highly probable that fruit from caldén (*Prosopis caldenia*), chañar (*Geoffre decorticans*), algarrobo (*Prosopis flexuosa*) and other trees was important in subsistence and in some way could balance the lack of some small prey which were complementary resources in the open and more humid eastern grassland. In addition, in the lower Río Colorado the river fish *perca* was consumed intensively (Martínez et al. 2005).

Located in this area is the outstanding discovery of the Chenque 1 burial site (Berón 2004). It is a complex stone elliptical structure with at least two levels of burials, created between 1030 and 370 years BP. The structure is formed from three types of burials:

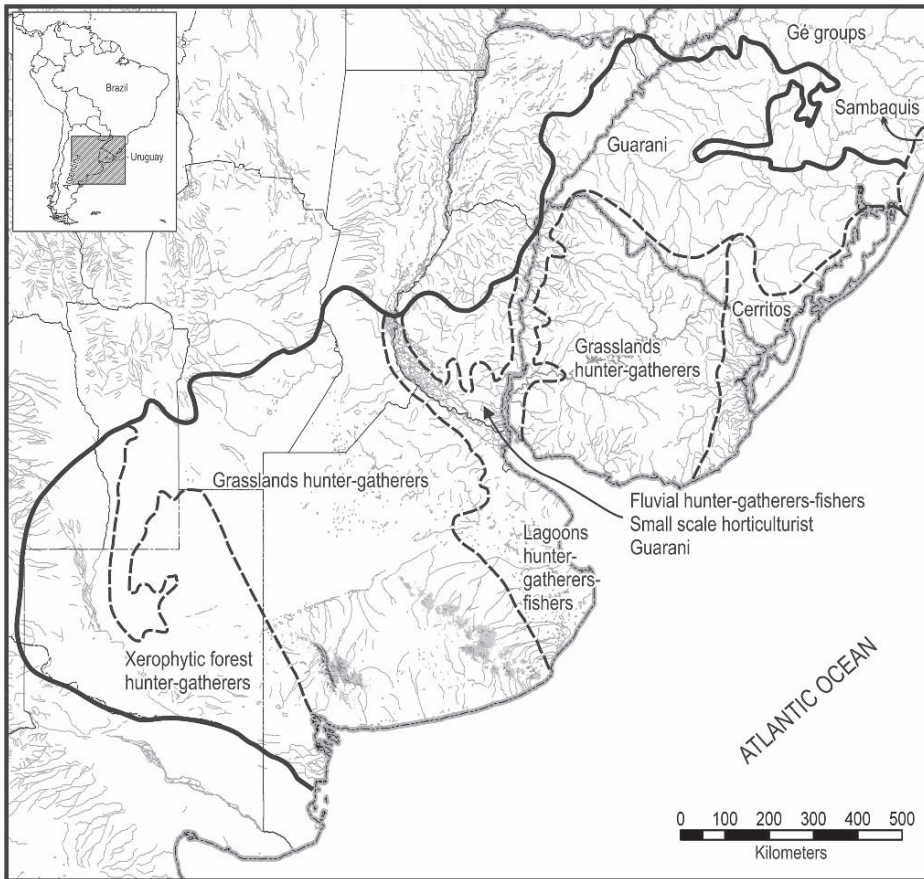


Figure 14.8. Map showing the main adaptive patterns in the pampas and campos during the Late Holocene. (Gustavo Politis)

primary, secondary, and a new type called disposition (*disposición*). This is formed from skeletons, partially articulated, with the anatomic units re-organized (for example the skull placed inside the toracic cavity). This strongly structured place of inhumation has been interpreted as representing the intensive re-use of certain spaces to re-enforce their sacredness. It has been proposed that the use of this place as a cemetery would function as a strategy to legitimate access to certain resources of the area (Berón 2004). This site, among other sites such as El Túmulo de Malacara, El Guanaco (Mazzia et al. 2004) and Paso Alsina 1 (Martinez 2004), shows the great variability in mortuary practices in the pampas during the Late Holocene (see also Barrientos 2001).

The grassland hunter-gatherers are well represented in both hilly areas and in the plains between them. Sites are abundant and mostly located on the border of lagoons. During this period guanaco was the main food resource, but also pampean deer, armadillo and rhea were consumed. Although guanaco was the main prey during Late Holocene times, around 1000 years BP, this mammal started a retraction toward the west and became scarce in the east. In relation to this, in the Tandilia Hills during this period the “lagarto overo” (*Tupinambis cf. merianae*), the coyo, and some caviidae rodents became important

resources, while the occasional consumption of bagres (*Rhamdia cf. sapo* and *Corydoras cf. paleatus*) was also recorded. The lithic technology is represented in a basic unifacial tool-kit made on quartzite and chalcedony and bola stones, however some new artifacts came to be used. Small triangular stemless projectile points are typical, suggesting the use of bow and arrow. Plain and incised pottery is also present in the area at ca. 3000 BP although in low frequencies (Politis et al. 2001) (Figure 14.9). During the Late Holocene changes in mobility, subsistence, and technology led Martinez (1999) to propose a process of economic and social intensification. It is suggested that the adoption and integration of technological innovation (such as pottery and the bow and arrow) by these grassland hunter-gatherers took place within a cultural context characterized by changes in social complexity (Politis et al. 2001). For the last part of the Holocene, at around 1000 BP, Barrientos (2001) proposed the expansion of a northeastern Patagonia population into the south-eastern pampas.

In the hilly area of the pampas—Tandilia, Ventania, Lihue Calel and small isolated rock outcrops—several rock paintings have been found (Madrid and Oliva 1994; Mazzanti 1991; Gradin 1975). In general terms they are geometric motifs (basically red, but also black and white), which have been correlated stylistically with the Late Holocene rock art of northern Patagonia, the Sierras Centrales, and Mendoza. However, no direct or indirect dates have been obtained. Moreover the presence of some anthropomorphic



Figure 14.9. Typical incised pottery from the pampas. (Gustavo Politis)



Figure 14.10. Rock painting from the Cerro Curicó site in the pampas. (Gustavo Politis)

motifs (such as in the Cueva de los Espíritus; Oliva and Algrain 2003), bird foot prints (D. Mazzanti, personal communication) and Tehuelche-related designs (Madrid et al. 2001) (Figure 14.10) indicate the complexity and the diachronicity of the rock art in the pampas (Consens and Oliva 1999). In the Uruguayan campos there is a concentration of rock painting in the southwest of the Uruguay River on granite outcrops (Consens 1998). They are basically red monochrome geometrical motifs and human and animal schematic figures. In the northwest of Uruguay there are petroglyphs on previously polished granite.

In both the pampas and campos, the interpretation of these symbolic manifestations has followed the world trend in these types of studies. Initially they were only correlated stylistically (i.e., Madrid and Oliva 1994; Gradin 1975). Later they were interpreted as territorial markers. More recently they are seen as spatial signs for ritual or places of social aggregation, and finally as the result of entoptic phenomenon (Oliva and Algrain 2004).

It has been demonstrated that the pampas foragers from the inland were also periodically exploiting the coast (Bonomo 2005). The resources from this zone (basically rounded cobbles and eventually seal) were procured by the inland foragers when the coast was in the catchment area of the residential camps or could be obtained by logistical trips. However, in this case, it is not possible to determine whether the raw material was collected directly from the outcrops, which would mean that the quarries were in non-restricted territories, or if they were obtained by exchange with the bands who would control the quarries (see discussion in Flegenheimer and Bayón 2002 and Bonomo 2005).

The hunter-gatherer-fishers of rivers and lagoons are well-represented in the lower part of the Río Salado Depression and in the floodplain of the main rivers, basically the lower Uruguay, the lower Paraná-Plata and its delta. On the eastern shore of the Paraná-Plata River, several sites indicated dense human occupation of certain plots. It is not clear yet if this density would be the result of a major degree of re-occupation or longer stay

in each habitation event. The sites indicate diversification in faunal exploitation including pampean deer and swamp deer (*Blastoceros dichotomus*), smaller mammals such as the coypo and guinea pig (*Cavia aperea*), fresh water shells, fish (*Doradidae* and *Pimelodidae*), and birds (Loponte and Acosta 2004). Interestingly, the foragers of the eastern shore of the La Plata River between ca. 1500 and 800 years BP were consuming with certain abundance the black corvine *Pogonia cromis* (Paleo and Perez Meroni 1999), a saltwater fish that now lives in the estuary zone of the river (tens of kilometers toward the south). In terms of raw materials, since suitable rocks are absent in the area, bones and possibly wood became the preferred raw material for making tools. Small artifacts made from quartzite and chalcedony are always present but in smaller quantities. Pottery is abundant and indicates full use of vessels for cooking and as containers, and sherds include types that are both plain and decorated by geometric incision (including drag-and-jab). The expansion in the use of pottery in these areas would be related to intensification in the exploitation of two resources: vegetables and fish (Pérez and Cañardo 2004).

In the delta and in the lower Paraná, the archaeological record shows some peculiarities in the basic hunter-gatherer-fisher adaptive pattern. In some way, it could be partially explained by the penetration of a “branch” of the Dominio Amazónico, which forms a subtropical forest in the delta and on the shore of the main rivers (Figure 14.11). This creates an environment with peculiar characteristics among which great floristic diversity is notable. Floral resources—especially the fruits of the pindó palm (*Syagrus romanzoffiana*)—were exploited recurrently in the island of the delta (Caggiano 1984; Loponte et al. 2004). Moreover, the historical record of the sixteenth century indicates that the Lower Paraná and Uruguay rivers were occupied by several ethnic groups (Chaná, Chaná Timbú, Timbú, Mbeguá, etc.), some of them practicing small-scale horticulture.



Figure 14.11. View of the Paraná River delta with a gallery forest. (Gustavo Politis)

In the Río Salado Depression the Late Holocene sites suggest a similar kind of human occupation with sites located in “lomas” close to the Salado River (Gonzalez de Bonaveri 2005). Coypo seems to be the more important food resource, while freshwater fish and birds were also important. Gathering of fruit from the tala (*Celtis tala*) forest was also recorded. Several radiocarbon dates place the occupation of these “lomas” between 1730 to 370 years BP (González de Bonaveri 2005). In the southern and western border of this area, Late Holocene foragers used resources in a different way since lithic raw material and guanaco herds were not far away. The Laguna de Sotelo and La Colorada sites are good examples of this situation (see revision in Gonzalez de Bonaveri 2005).

It seems clear that during the Late Holocene in the pampas the interaction network amplified and there is much evidence of exotic material with highly symbolic value circulating in the different areas (Politis and Madrid 2001; Berón 2004; Gonzalez de Bonaveri 2005; Martínez 2004). For example, in the Tapera Moreira locality the Chilean pottery called “Vergel-Valdivia” coexists with the local pottery; in the lower Río Colorado lip lugs and ear plugs are present in several sites; in the Río Salado Depression several beads made of crisocola (a copper mineral) and semi-precious extra-regional rocks have been found while the typical Patagonian engraved stone plates are recovered in a few sites. For some authors (i.e., Gonzalez de Bonaveri 2005), these exotic items would have played a central role in the economic organization and therefore would suggest some kind of social inequality.

The late phase of the cerritos construction in eastern Uruguay and Brazil has been interpreted as the result of a process of complexity among hunter-gatherers and small scale horticulturists (López Mazz 2001; Iriarte et al. 2004). At ca. 1000 BP, some clusters of cerritos could be the result of their emergence as important ceremonial centers. At this time the archaeological record shows a reduction in residential mobility and complex settlement that indicates an increase in the energy invested in monumental architecture. This could be a new strategy to negotiate inequalities and to legitimate interest groups (López Mazz 2001). However, the emergence of this particular village mode of life and the relationship between monumentality and centralized political systems should be noted (López Mazz 2001).

In the middle and lower basin of the Paraná and Uruguay rivers several changes occurred during the Late Holocene (Cerutti 2000). Pottery entered the area between 5000 to 2500 BP, and at around 2000 BP the first canoe people are recorded in this fluvial area. It seems that horticulture began to be part of subsistence during this time, probably in the last 2,000 years, and was related to the expansion of the Tupi-Guaraní (Rodriguez 2001; see Chapter 33 in this volume). In the middle and lower Paraná-Uruguay an elaborate pottery tradition, known as the “Goya-Malabrigo culture,” is registered at about 1000 BP. It is well represented in many sites of the floodplain and on the islands and is characterized by abundant zoomorphic representations (mainly a variety of birds). Subsistence patterns were based on a mixed economy of small and medium mammals, birds, fish, mollusks, and products from the forest (especially palm fruit). Small scale tropical horticulture might have been practiced although archaeological evidence is still not conclusive (Rodriguez 2001).

In the northern border of the campos, which is basically in the southern planalto, several traditions have been proposed: Itararé, Casa de Pedra, and Taquara (Schmitz 1988; Schmitz and Basile Becker 1991). These traditions were interpreted as regional continuities of the Humaitá Tradition as a result of the adoption of pottery, horticulture, certain techniques of lithic polishing, and the construction of pit-houses. However, recent work of Noelli (1999–2000) challenges this interpretation, proposing that this Late Holocene population was the southern expansion of the Gé linguistic family, being the ancestors of

the ethnographic Kaingang and Xokleng groups. The early Gé population of the area would have been displaced from the proximity of the main rivers to the more high and cold lands of the planalto by the Guarani Indians between 2000 and 1000 BP. In a second event, the Gé population was also displaced by the Guarani at around 700 BP from the Atlantic coast and toward the higher part of the planalto.

The Guarani are a group of populations, well known in archaeological, historical linguistic and ethnographic terms, belonging to a Tupi cultural matrix. The origin of these populations would be in the Madeira-Guapore basin, in southwest Amazonia. In a process of continuous demographic growth and territorial expansion, they spread through several regions of southeastern South America, including most of the campos and the northeastern part of the pampas (Brochado 1984; Noelli 1999–2000) (Figure 14.12). They reached their southern limit, the Lower Paraná-Plata rivers, at least by ca. 700 BP (Loponte et al. 2004).

In terms of social-political organization and kinship, the Guarani formed several nuclear families around a political/religious leader. The extended family would be composed of a variable number of nuclear families, reaching sometimes sixty or more persons. The larger villages could integrate four or five extended families, giving an average of 300 to 600 inhabitants. The subsistence of the Guarani population was quite generalized, based on horticulture, gathering of plants and insects, and hunting and fishing. They cultivated about 39 plant genera subdivided in at least 159 cultivars. Among them the main species were manioc (*Manihot esculenta*), sweet potato (*Ipomea batata*), maize, and beans.

In spite of the great geographical expansion and the tendency to systematically incorporate non-Guarani people, pottery maintains a great uniformity. The typical painted and corrugated pottery (Figure 14.13) is found in distant locations, thousands of kilometers



Figure 14.12. View of the left margin of the upper Uruguay River, showing the location of the Guaraní site 3 Bocas II. (photo courtesy Rodrigo Angrizani)



Figure 14.13. Typical Guarani corrugated pottery. (Museo de La Plata Collection).

apart, with very little variation, indicating that it was produced in the context of a rigid stylistic, highly standardized pattern (Noelli 1999–2000).

The chronological span of the dated Guaraní sites in the region is between ca. 2000 to 200 BP (Noelli 1999–2000), but it should be remembered that well-established Guaraní populations are still living in the region. The Guaraní expansion into the campos and pampas produced significant cultural changes. They introduced several cultigens, and some technological and stylistic patterns. Overall, they spread a new mode of life among the local population.

CONCLUSION

The pampas and campos grasslands were the backdrop for the historical trajectories of foraging populations for the last ca. 12,000 years. This is the bottom line for the peopling of this region due to the fact that nothing has been securely dated that pre-dates this period. For nearly 8,000 years, these populations maintained a foraging way of life within the context of an increase in intra-regional variation. At ca. 4000 years ago the first evidence of plant domestication appeared in the cerritos of the eastern campos, producing one of the main changes in the region. It seems that maize, squash and beans were the main cultigens and manihot was significant only in the northern sector of the campos. A millennium later, pottery, probably with a subtropical lowlands origin, is recorded in several localities in both the pampas and campos. Moreover, at roughly the same time the technology of bow and arrow spread throughout the region. These changes generated transformation in the Late Holocene foragers and in some groups there began a process of intensification that in certain areas induced various degrees of social complexity. A violent colonization process heavily impacted all of these societies, causing the disappearance of the great majority of them.

ACKNOWLEDGMENTS This chapter is one product of the INCUAPA (Investigaciones Arqueológicas y Paleontológicas del Cuaternario Pampeano) research program, which receives grants from the CONICET, ANPCYT and UNCPBA. I have received stimulating suggestions from Irina Capdepon, Rodrigo Angrizani, Gustavo Martinez, and Rafael Curtoni. Heidi Luchsinger helped with the English.

REFERENCES

- Aguirre, Marina and Robert Whatley, 1995, Late Quaternary marginal marine deposits and paleoenvironments from northeastern Buenos Aires Province, Argentina: a review. *Quaternary Science Review* 14: 223–254.
- Barrientos, Gustavo, 2001, Una aproximación bioarqueológica al estudio del poblamiento prehispánico tardío del sudeste de la Región Pampeana. *Intersecciones en Antropología* 2: 3–18. Facultad de Ciencias Sociales de la UNCPBA, Olavarria.
- and Sergio I. Perez, 2005, Was there a population replacement during the Late mid-Holocene in the southeastern pampas of Argentina? Archaeological evidence and paleoecological basis. *Quaternary International* 132: 95–106.
- Bayón, Cristina and Gustavo Politis, 1997, Pisadas humanas en el sitio de Monte Hermoso 1 (Pcia. de Buenos Aires). *Arqueología* 6: 83–115. Instituto de Prehistoria, Facultad de Filosofía y Letras, UBA, Buenos Aires.
- , Nora Flegenheimer, Marcelo Zárate, and Cecilia Deschamp, 2004, “... Y vendrán los arqueólogos en busca de un hueso”... Sitio El Guanaco, partido de San Cayetano. In *Aproximaciones Contemporáneas a la Arqueología Pampeana: Perspectivas Teóricas, Metodológicas, Analíticas y Casos de Estudio*, edited by G. Martinez, M. Gutierrez, R. Curtoni, M. Berón, and P. Madrid, pp. 247–258. Facultad de Ciencias Sociales, UNCPBA, Olavarria.
- Berón, Mónica, 2004, Dinámica Poblacional y Estrategias de Subsistencia de Poblaciones Prehispánicas de la Cuenca Atuel-Salado-Chadileuvú-Curacó, Provincia de la Pampa. Ph.D. dissertation. Facultad de Filosofía y Letras, UBA, Buenos Aires.
- Bonomo, Mariano, 2005, Archaeology and human interaction between coastal and inland settings: the pampean Atlantic coast, Argentina. In *Before Farming* 3:1–14.
- Bracco, Roberto, Laura del Puerto, Horacio Inda, and Carola Castiñeira, 2005, Mid-Late Holocene cultural and environmental dynamics in Eastern Uruguay. *Quaternary International* 123: 37–45.
- Brochado, Jose P., 1984, An Ecological Model of the Spread of Pottery and Agriculture into Eastern South America. Ph.D. dissertation. University of Illinois at Urbana-Champaign.
- Caggiano, Maria Amanda, 1984, Prehistoria del N.E. argentino sus vinculaciones con la República Oriental del Uruguay y sur de Brasil. *Pesquisas* 38. Instituto Anchietano de Pesquisas, São Leopoldo.
- Cerutti, Carlos N., 2000, Ríos y praderas. Los pueblos del litoral. In *Nueva Historia Argentina: Los Pueblos Originarios de la Conquista*, edited by M. Tarragó, pp. 105–146. Editorial Sudamericana, Buenos Aires.
- Consens, Mario, 1998, Nueva aproximación al arte rupestre de la cuenca del Río de la Plata. *Boletín* 12:18–25. SIARB – Sociedad de Investigación del Arte Rupestre de Bolivia, La Paz.
- , 2003 *El Pasado Extraviado: Prehistoria y Arqueología del Uruguay*. Librería Linardi y Risso, Montevideo.
- Crivelli Montero, Eduardo, Mario Silveira, Emilio Eugenio, Patricia Escola, Mabel Fernández, and Nora Franco, 1987/88, El sitio Fortín Necochea (Partido General La Madrid, Provincia de Buenos Aires). Estado actual de los trabajos. *Paleontológica* 4: 39–53.
- Dias, Adriana, 2004, Sistemas de assentamento e estilo tecnológico: uma proposta interpretativa para a ocupação pré-colonial do alto vale do rio dos Sinos, Rio Grande do Sul. Ph.D. dissertation. Faculdade de Filosofia, Letras e Ciências Humanas, USP, São Paulo.
- and André Jacobus, 2003, Quão antigo é o povamento do Sul do Brasil? *Revista do CEPA* 27 (38):38–67. EDUNISC, Santa Cruz do Sul.
- Flegenheimer, Nora and Cristina Bayón, 2002, Cómo, cuando y donde? Estratégias de abastecimiento lítico en la Pampa Bonaerense. In *Del Mar a los Salitrales. Diez Mil Años de Historia Pampeana en el Umbral del Tercer Milenio*, edited by D. Mazzanti, M. Berón, and F. Oliva, pp. 231–241. Facultad de Humanidades, UNMdP/ SAA, Mar del Plata.
- , C. Bayón, N. Valente, J. Baeza, and J. Femenías, 2003, Long distance tool transport in the Argentine Pampas. *Quaternary International* 109–110: 49–64.

- Fontana, Sonia., 2004, *Present and Past Coastal Dune Environments of South Buenos Aires Province, Argentina*. Acta Universitatis Upsaliensis.
- Gonzalez de Bonaveri, Maria Isabel, 2005, *Arqueología de Alfareros, Cazadores y Pescadores Pampeanos*. Sociedad Argentina de Antropología, Buenos Aires.
- Gradín, Carlos J., 1975, *Contribución a la Arqueología de La Pampa*. Dirección Provincial de Cultura de la provincia de La Pampa.
- , 1984, *Investigaciones Arqueológicas en Casa de Piedra*. Dirección General y Ente Ejecutivo Casa de Piedra, La Pampa.
- Gutierrez, Maria A., 2004, Análisis Tafonómicos en el Area Interserrana (Provincia de Buenos Aires). Ph.D. dissertation. Facultad de Ciencias Naturales y Museo, UNLP, La Plata.
- and Cristian Kaufmann, 2004, El rol de la acción fluvial en los procesos de formación del sitio Paso Otero 1. Paper presented at XV Congreso Nacional de Arqueología Argentina. Río Cuarto, Córdoba.
- Hoeltz, Sirley, 1997, *Artesãos e Artefatos Pré-Históricos do Vale do Rio Pardo*. Edunisc, Santa Cruz do Sul.
- Iriarte, José, Irene Holst, Jose López, and Leonel Cabrera, 2001, Subtropical wetland adaptation in southeastern Uruguay: an archaeobotanical perspective. In *Enduring Records: The Environmental and Cultural Heritage of Wetlands*, edited by B. Purdy, pp. 61–70. Oxbow Books, Oxford.
- , Irene Holst, O. Marozzi, C. Listopad, E. Alonso, A. Rinderknecht and J. Montaña, 2004, Evidence for cultivar adoption and emerging complexity during the mid-Holocene in the La Plata basin. *Nature* 432: 614–617.
- López Mazz, José M., 2001, Las estructuras tumulares (cerritos) del litoral atlántico uruguayo. *Latin American Antiquity* 12 (3): 231–255.
- Loponte, Daniel and Alejandro Acosta, 2004, Late Holocene hunter-gatherers from the Pampean wetlands. In *Zooarchaeology of South America*, edited by Guillermo Mengoni Goñalons, pp. 39–57. BAR International Series, 1298. Oxford.
- , Alejandro Acosta, and Javier Mussali, 2004, Complejidad social: cazadores-recolectores y horticultores en la región pampeana. In *Aproximaciones Contemporáneas a la Arqueología Pampeana: Perspectivas Teóricas, Metodológicas, Analíticas y Casos de Estudio*, edited by G. Martinez, M. Gutierrez, R. Curtoni, M. Berón and P. Madrid, pp. 41–60. Facultad de Ciencias Sociales, UNCPBA, Olavarria.
- Madrid, Patricia and Fernando Oliva, 1994, Las representaciones rupestres del Sistema de Ventania, Provincia de Buenos Aires. *Revista del Museo de La Plata* IX, Antropología 73: 199–223.
- , Gustavo Politis and Daniel Poire, 2000, Pinturas rupestres y estructuras de piedra en las Sierras de Curicó (extremo noroccidental de Tandilia, Región Pampeana). *Intersecciones en Antropología* 1: 35–53.
- Martin, Paul and K. Suguio, 1989, Excursion route along the Brazilian coast between Santos and Campos. *International Symposium on Global Change in South America*. Special Publication, No. 2. São Paulo.
- Martínez, Gustavo, 1999, Tecnología, Subsistencia y Asentamiento en el Curso Medio del Río Quequén Grande: Un Enfoque Arqueológico. Ph.D. dissertation. Facultad de Ciencias Naturales y Museo, UNLP, La Plata.
- , 2004, Resultados preliminares de las investigaciones arqueológicas realizadas en el curso inferior del Río Colorado (Pdos. De Villarino y Patagones). In *Aproximaciones Contemporáneas a la Arqueología Pampeana: Perspectivas Teóricas, Metodológicas, Analíticas y Casos de Estudio*, edited by G. Martínez, M. Gutierrez, R. Curtoni, M. Berón, and P. Madrid, pp. 275–292. Facultad de Ciencias Sociales, UNCPBA, Olavarria.
- , Maria Gutierrez, and José Prado, 2004, New archaeological evidences from the Late-Pleistocene/ Early Holocene Paso Otero 5 Site (Pampean Region, Argentina). *Current Research in the Pleistocene* 21: 16–18.
- and Maria Gutierrez, 2004, Tendencias en la explotación humana de la fauna durante el Pleistoceno final y Holoceno en la Región Pampeana (Argentina). In *Zooarchaeology of South America*, edited by Guillermo Mengoni Goñalons, pp. 81–98. BAR Archaeopress, 1298.
- , Francisco Zangrando and Luciana Stoessel, 2005, Sitio El Tigre (Pdo. De Patagones, Pcia. de Buenos Aires, Argentina): evidencias sobre la explotación de peces en el curso inferior del Río Colorado e implicancias para los sistemas de subsistencia. *Magallania* 33 (2): 99114.
- Mazzanti, Diana, 1991, Haras Los Robles. Un sitio con pictografías en el borde oriental de las Sierras de Tandilia. *Boletín del Centro* 3: 180–200.

- _____, 1999, Ocupaciones humanas tempranas en Sierras La Vigilancia y Laguna La Brava, Tandilia Oriental (Provincia de Buenos Aires). *Actas del XII Congreso Nacional Arqueología Argentina* III: 149–155. La Plata.
- _____, 2001, La secuencia arqueológica y los problemas de investigación. In *Cueva Tixi: Cazadores y Recolectores de las Sierras de Tandilia Oriental. 1 Geología, Paleontología y Zooarqueología*, edited by D. Mazzanti and C. Quintana, pp. 9–16. Laboratorio de Arqueología, Mar del Plata.
- Mazzia, Natalia, Clara Scabuzzo and Ricardo Guichón, 2004, Sobre cráneos, pelvis y otros huesos. Entierros humanos en el sitio El Guanaco. In *Aproximaciones Contemporáneas a la Arqueología Pampeana: Perspectivas Teóricas, Metodológicas, Analíticas y Casos de Estudio*, edited by G. Martínez, M. Gutierrez, R. Curtoni, M. Berón and P. Madrid, pp. 293–304. Facultad de Ciencias Sociales, UNCPBA, Olavarría.
- Melo, Walter, Roberto Schillizzi, Gerardo Perillo and M. Cintia Piccolo, 2003, Influencia del área continental pampeana en la evolución del estuario de Bahía Blanca. *AAS Revista* 10 (1): 39–52.
- Messineo, Pablo and Gustavo Politis, in press, El Holoceno Temprano: La Moderna y Campo Laborde. *INCUAPA 10 años. Perspectivas Contemporáneas en la Arqueología Pampeana*, edited by G. Politis. Serie Monográfica 5, Eds. INCUAPA, Olavarría.
- Milder, Saul, 1994, A fase Ibicuí: uma revisão arqueológica, cronológica e estratigráfica. M.A. thesis. Instituto de Filosofia e Ciências Humanas, PUCRS, Porto Alegre.
- Miller, Eurico, 1987, Pesquisas arqueológicas paleoindígenas no Brasil Ocidental. *Estudios Atacameños* 8: 37–61. Chile.
- Noelli, Francisco, 1999–2000, A ocupação humana na região sul do Brasil: arqueologia, debates e perspectivas – 1872/2000. *Revista USP* 44 (2): 218–269.
- Oliva, Fernando and Mariana Algrain, 2004, Una aproximación cognitiva al estudio de las representaciones rupestres del Casuhati (Sistema Serrano de Ventania y llanura adyacente, provincia de Buenos Aires). In *La Región Pampeana – Su Pasado Arqueológico*, edited by C. J. Gradín and F. Oliva, pp. 49–60. Laborde Editor.
- Paleo, Maria C. and Mercedes Perez Meroni, 2001, Nuevos aportes a la arqueología de Punta Indio. *Actas del XII Congreso Nacional de Arqueología Argentina* III: 165–169.
- Pérez, Maricel and Lorena Cañardo, 2004, Producción y uso de cerámica en el norte de la provincia de Buenos Aires. In *Aproximaciones Contemporáneas a la Arqueología Pampeana: Perspectivas Teóricas, Metodológicas, Analíticas y Casos de Estudio*, edited by G. Martínez, M. Gutierrez, R. Curtoni, M. Berón, and P. Madrid, pp. 335–348. Facultad de Ciencias Sociales, UNCPBA, Olavarría.
- Politis, Gustavo, G. Barrientos, and María C. Scabuzzo, in press, Los entierros humanos del sitio Arroyo Seco 2. In *Estado Actual de las Investigaciones en el Sitio Arroyo Seco 2 (región pampeana, Argentina)*, edited by G. Politis and M. Gutierrez. Serie Monográfica 4. Publicaciones INCUAPA, Olavarría.
- _____, and Maria Gutierrez (eds.), in press, *Estado Actual de las Investigaciones en el Sitio Arroyo Seco 2 (región pampeana, Argentina)*. Serie Monográfica 4. Publicaciones INCUAPA, Olavarría.
- _____, Eileen Johnson, Maria Gutierrez, and Ted Hartwell, 2003, Survival of the Pleistocene fauna: new radiocarbon dates on organic sediments from La Moderna (Pampean Region, Argentina). In *Where the South Winds Blow. Ancient Evidence for Paleo South Americans*, edited by L. Miotti, M. Salemme, and N. Flegenheimer, pp. 45–50. Center for the Studies of the First Americans (CSFA) and Texas A&M University Press, College Station.
- _____, and Patricia Madrid, 2001, Arqueología pampeana: estado actual y perspectivas. In *Historia Argentina Prehispánica*, edited by E. E. Berberían and A. E. Nielsen, Tomo II: 737–814. Editorial Brujas, Argentina.
- _____, Gustavo Martínez and Mariano Bonomo, 2001, Alfarería temprana en sitios de cazadores-recolectores de la Región Pampeana (Argentina). *Latin American Antiquity* 12 (2): 167–181.
- _____, Pablo Messineo, and Cristian Kaufmann, 2004, El poblamiento temprano de las llanuras pampeanas de Argentina y Uruguay. *Complutum* 15: 207–224. Madrid.
- _____, José L. Prado, and Roelf P. Beukens, 1995, The human impact in Pleistocene-Holocene extinctions in South America – The Pampean case. In *Ancient Peoples and Landscapes*, edited by E. Johnson, pp. 187–205. Museum of Texas Tech University, Lubbock.
- Prous, Andre and Emilio Fogaça, 1999, Archaeology of the Pleistocene-Holocene boundary in Brazil. *Quaternary International*, 53/54: 21–41.
- Rodríguez, Jorge, 2001, Nordeste prehispánico. In *Historia Argentina Prehispánica*, edited by E. E. Berberían and A. E. Nielsen, Tomo II: 693–736. Editorial Brujas, Argentina.
- Schmitz, Pedro, 1976, *Sítios de Pesca Lacustre em Ríto Grande, RS, Brasil*. Instituto Anchieta de Pesquisas, São Leopoldo.

- _____, 1988, As tradições ceramistas do planalto sul-brasileiro. *Documentos* 2: 75–130. Instituto Anchieta de Pesquisas, São Leopoldo.
- _____, G. Naue, and Itala Basile Becker, 1991, Os aterros dos campos do Sul: a tradição Vieira. In *Pré-história do Rio Grande do Sul*, edited by P. Schmitz, pp. 107–132. Instituto Anchieta de Pesquisas, São Leopoldo.
- _____ and Itala Basile Becker, 1991, Os primitivos engenheiros do Planalto e suas estruturas subterrneas: a tradição Taquara. In *Pré-história do Rio Grande do Sul*, edited by P. Schmitz, pp. 67–106. Instituto Anchieta de Pesquisas, São Leopoldo.
- Soriano, Alberto, R. J. León, O. E. Sala, R.S. Lavado, V.A. Deregibus, M.A. Cauhépé, O.A. Scaglia, C. A. Velázquez, and J. H. Lemcoff, 1992, Río de la Plata Grasslands. In *Natural Grasslands, Introduction and Western Hemisphere*, edited by Robert T. Coupland, pp. 367–407. Elsevier.
- Suarez, Rafael and José M. López, 2003, Archaeology of the Pleistocene-Holocene transition in Uruguay: an overview. *Quaternary International* 109–110: 65–76.

Pre-Columbian Mound Complexes in the Upano River Valley, Lowland Ecuador

ERNESTO SALAZAR

INTRODUCTION

Ecuadorian archaeology is to be understood in terms of a tight interaction between major ecosystems: the coastal region, the highlands, and the Amazon region. A synthesis, however, has been hampered by the uneven development of archaeology, particularly in the Amazon region, where little research has been carried out. This situation is largely due to the misconception that the terra firme region has been, since pre-Columbian times, a hinterland with few cultural innovations. Recent research has not only shown a livelier picture of cultural development in the region, but also a wealth of archaeological data unexpected a few years ago.

This chapter will address present day developments in the archaeology of Ecuador's Amazon region, with particular emphasis on the discovery of a series of pre-Columbian settlements in the upper Upano Valley, Morona Santiago Province. It is suggested that a high demographic concentration on the eastern slopes of the Andes, during the Regional Development period (500 BC-AD 500), was made possible by the active role of these groups in an exchange network between the highlands and the plain of the Amazon. The upper Upano region was a locus of chiefdom-level sociopolitical complexity characterized by prolific labor-intensive mound-building activity as well as dynamic intra- and inter-regional trade relationships. Upano is one of a growing number of cognate societies known in other parts of lowland South America, attesting to the significance of the tropical region for the rise of pre-Columbian social complexity, while raising questions about the limits to political development in that environment.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

THE ARCHAEOLOGY OF ECUADOR'S AMAZON REGION

Ecuador's Amazon region covers approximately 130,760 km². The eastern slopes of the Andes drop gradually to 1,200 masl forming a hilly plain through which rivers, such as the Quijos, Pastaza, Palora, Upano, and Zamora flow. Then the land begins to ascend to the east, to a height of 2,500 m, forming a broken chain of mountains known as the Third Cordillera. This elongated plain is known in Ecuador as *selva alta* or *montaña*, beyond which the land drops to 300 masl where the great Amazon plain, or *selva baja*, begins.

The archaeological literature of the region is rather scarce. Prior to 1950, we find mostly reports by travelers, missionaries and anthropologists of the discovery of pottery in the *selva baja* and monumental sites in the *selva alta* (Porras 1971). In 1956, Meggers and Evans (1968) carried out a short archaeological survey along the Napo River, finding several sites which they grouped in four phases: Yasuní (50 BC), Tivacundo (AD 510), Napo (AD 1168–1480), and Cotacocha (Contact era). Later on, Porras (1971, 1975) carried out research at sites located both in *selva alta* and *selva baja*, establishing several archaeological phases, among them Tayos (1500 BC), Cosanga, Pastaza (2200–1000 BC), and Upano (2750 BC to Contact era).

By the 1980s, Ecuador's Amazonian archaeology was, at most, disjointed, and very little could be said about cultural development in terms of a regional perspective. Archaeological interpretation was built largely from small pottery samples from equally small excavations or surface collections; chronology was inaccurate; and interpretations were drawn from ethnography rather than from archaeological evidence. In formal terms, it is apparent that a "fluvial" influence permeates archaeological phases. Each Amazonian river seems to have its own archaeological phase, replicating an old ethnographic model in which ethnic groups were designated by the name of the river where their settlements were located.

Contemporary research now shows that the Napo Phase extends over to the Aguarico river valley as well. On the other hand, the Pastaza Phase needs urgent redefinition. Established by Porras as a Formative phase of limited geographic distribution, it now appears to have a much wider distribution. Sites with Pastaza pottery abound in a 40–80 km-wide corridor along the base of the Andes, from the Upano River to the south, to the Guames River and San Agustín (Colombia) to the north. With such a distribution, apparently continuous, it will be difficult to maintain Pastaza as a phase. It is probable that we are dealing here with a stylistic horizon characterized by local variations and late chronology, basically contemporaneous with the Napo Phase. Large sites with huge amounts of pottery, post holes, funerary urns, and other materials are becoming a common feature of Ecuador's Amazonian archaeology, which no doubt will allow a better understanding of tropical forest settlements.

In the *selva alta*, the eastern slopes of the Andes may provide new insights on population movements and complex societies. Chiefdom archaeology and ethnohistory have focused on the vertical control of biotic zones of one ecosystem, the Andean range, overlooking the fact that certain groups may have practiced a wider economy based on the control of several ecosystems. We know that a group of the Jivaroan linguistic stock, the Palta, occupied the highland province of Loja. On the other hand, the highland Cañari occupied the lowland stretch of *selva alta*, at least from the Paute River, southward to the Río Cuyes. The highland Puruha are also known for exploiting lowland enclaves. Finally, the lowland Cosanga, according to Porras (1975), may have emigrated to the highlands. Although this hypothesis has met harsh criticism, it still remains possible that the Cosanga may have controlled at least the Pillaro region where most highland Cosanga pottery is found. The

control of ecosystems strategy is clearly shown in the ethnographic present by the highland Saraguro Indians who have occupied the lowland Yacuambi Valley.

In pre-Columbian Ecuador, long distance trade took place between highlands and lowlands. The Andean slopes (both eastern and western) are located in the frontier between major ecosystems and played an active role facilitating the flow of goods from “ports of trade” (*sensu* Chapman 1976:164), located along, or in the vicinity of, mountain passes. Today, a string of towns (Papallacta, Baeza, Tena, Puyo, Macas, Méndez, among others), runs along the eastern montaña, providing highland and lowland goods across ecosystems. A similar pattern occurred in Colonial times, with towns such as Archidona, Sevilla del Oro, Nuestra Señora del Rosario, Logroño de los Caballeros, Valladolid, among others. With the same purpose, no doubt, large pre-Columbian settlements were established along the eastern slopes. Monumental sites discovered in the Cosanga region (Porras 1975), mounds and agricultural terraces in the upper Pastaza Valley (Mera 1919), mound villages in the upper Upano region (Salazar 1998a, b; Rostain 1999), and monumental sites with stone masonry in the Río Cuyes area (Ekstrom 1975; Salazar 2000) are only a few known instances of the presence of montaña chiefdoms in pre-Columbian Ecuador. The remainder of this paper will deal with preliminary investigations carried out in the Upano Valley, in a project funded by the Institut Français d’Etudes Andines (IFEA).

THE UPANO RIVER VALLEY

From its source at Laguna Negra (eastern slopes of the Andes, 3,600 masl), the Upano River flows in a northeast direction towards the Palora River; but suddenly it makes a U-turn and heads toward the south to join the Paute River, and eventually the Santiago River, an affluent of the Amazon. Along its ca. 100-km course, the Upano River has cut a channel 50 to 100m deep, and 1,000 to 2,400m wide, flanked by steep walls, known locally as “barrancos.” The strong current characteristic of this river makes the Upano unsuitable for navigation and unpredictable for crossing, as the stream constantly moved across the channel. In the past three decades, however, the river-bed has remained steady, giving room for the formation, on the channel, of a relatively wide flood plain, where a permanent settlement (Playa de San Luis) of daring colonists has been established.

The Upano River cuts across a large plain (located at 1,200–1,500 masl) sloping down towards the south and east until reaching the Cutucú Cordillera. On the right bank, the plain is a sort of a plateau (Edén) with hardly any topographical feature worthy of notice, except for small streams that cut across it to fall into the barranco. Towards the south, this plateau ends at the edge of a 70m-deep ravine cut by the Domono River flowing eastward to the Upano River. At the base of this ravine the terrain gives way to a lower plain that runs south for several kilometers to the present day towns of General Proaño and Macas. On the left bank a similar situation occurs. The Balcones plateau rolls down to Huapula (where the Sangay complex is located), and then drops to the plain extending south to the present day towns of Santa Rosa and Sevilla del Oro (the latter located opposite Macas).

From a geological point of view, the Upano Valley is built on huge deposits of clasts and sand, mostly of volcanic origin. The history of the nearby Sangay volcano (5,230m high) is not well known, but geological survey carried out by Hall (1977:83) indicates the existence of at least three craters in a position that suggests a migration of vents towards the west. The soils of the upper Upano Valley have been described as “hydrandepts” of rather low fertility and high water content, lying on volcanic ashes, usually weathered.

As a general rule, the soil profiles consist of a black vegetal layer 10–20 cm thick, followed by an intermediate layer lighter in color (usually around 30 cm thick), and a thicker yellow layer (2 m and more) that constitutes the substratum of the profile. Both colonists and indigenous Shuar consider the Upano Valley fertile enough for their agricultural practices. The Upano river valley is heavily deforested due to the intensive colonization from the highlands that has taken place since the 1920s.

THE UPANO MOUND COMPLEXES

The prehistoric occupation of the Upano region was first brought to scholarly attention by Porras' (1987) discovery and excavation of a large complex of artificial mounds located along the small Huapula River. The significance of the discovery was somehow obscured by Porras's claims that the people who built the mounds worshipped the Sangay Volcano, and that the spatial distribution of mounds, as seen from above, depicted a human being in sexual intercourse with a she-jaguar. Porras made no effort to apply a regional approach to the Sangay Complex in order to determine its context. An archaeological survey of the upper Upano River region subsequently carried out by the author, between the "curva del Upano" and Macas, yielded about 70 mound complexes (Figure 15.1).

A typical Upano mound complex is composed of a number of rectangular platforms, usually in groups of four, delimiting an interior plaza, quadrangular in shape. A variant of this pattern includes a smaller platform in the center of the plaza. At times, a platform may adopt an L-, T- or U-shaped pattern, to facilitate the delimitation of contiguous plazas. A platform is always flat on top, but occasionally, on the long ones, another small platform may be superimposed on one or both ends, a feature that Porras interpreted as the paw of the jaguar in the Sangay Complex.

Platform dimensions are variable, 10–100 m long, 8–20 m wide, and 2–8 m high. As a general rule, a mound complex is conformed by several plazas with their corresponding platforms flanking them, although the simpler pattern of four platforms and one plaza is not uncommon. Most archaeological complexes have been observed on open grazed land. However, often a complex may lie part on grazed land and part on land still covered by forest, preventing an accurate appreciation of the archaeological site. If we add to this the complexity of mound distribution, the difficulty of isolating sites can easily be appreciated. For the purposes of this investigation, the boundaries of a platform complex are established when a break of continuity (an empty tract of land, a ravine or a stream) is apparent on the ground, visibly separating one group of platforms from another. The following discussion includes only the description of sites preeminent either for large size or for a particular feature that may help us to understand the nature of the pre-Columbian occupation in the region.

Starting from the north, near the Curva of the Upano River, and towards the south, we have been able to locate, among others, the Barranco Complex (1 plaza with 40–50 m long platforms) partially destroyed by highway construction, and 3 locations named Mau-1 (a series of low platforms with five plazas, Figure 15.2), Mau-2 (at least 20 platforms and several plazas) and Mau-3 (4 platforms and 1 plaza). These sites are located 2.5 km south of Cooperativa Quinta, on the Mau upland, skirting a swamp, but scores of mounds still lie hidden in the forest. When survey is completed, it will be no surprise if the Mau area shows a continuous distribution of mound complexes.

Further south, at about 3 km from Mau, lies the Huapula Complex, renamed "Sangay" by Porras. Huapula, the original name used by both Shuar and colonists, has been given

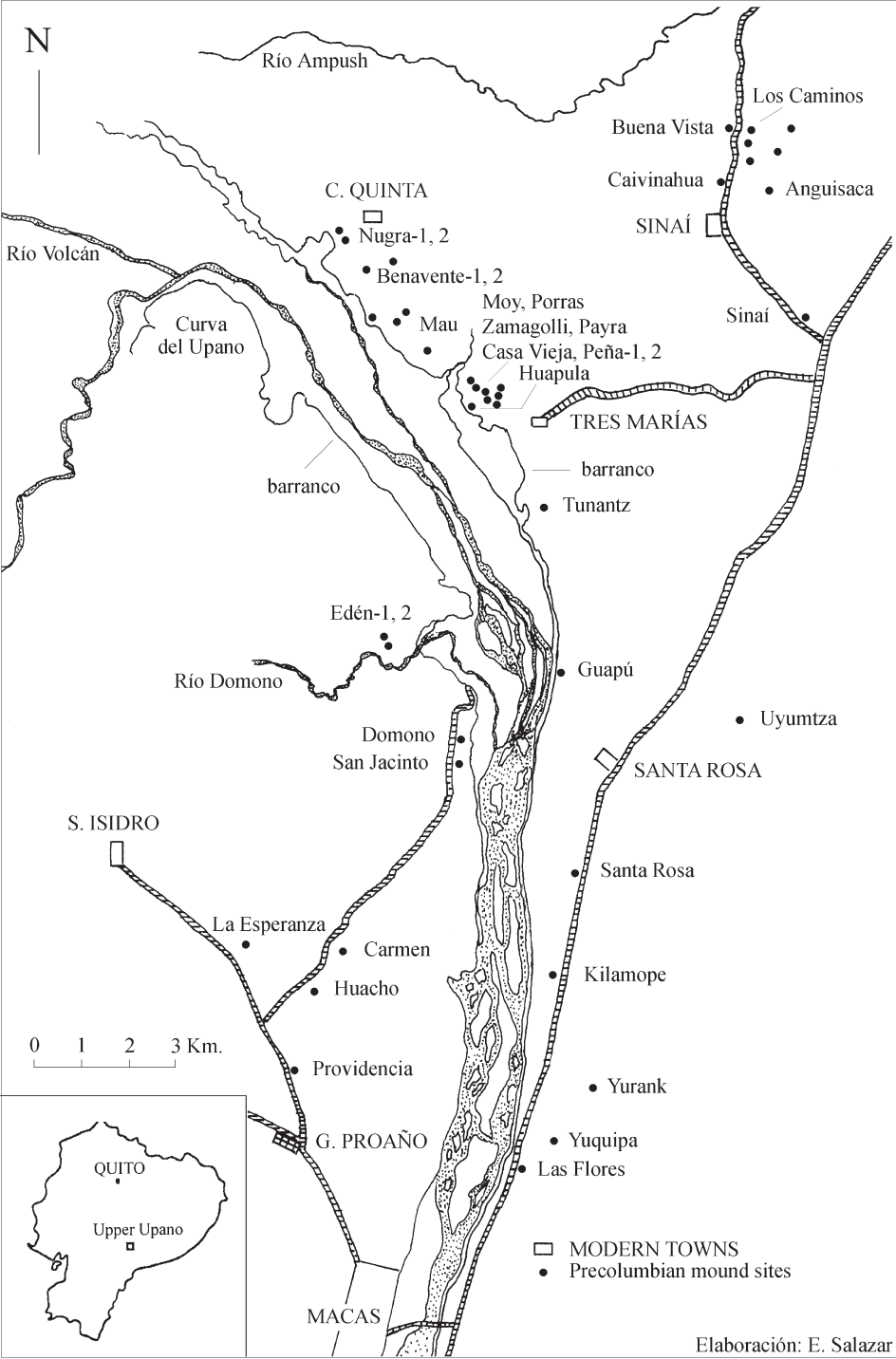


Figure 15.1. Map of the upper Upano Valley, with precolumbian mound sites. (Ernesto Salazar)

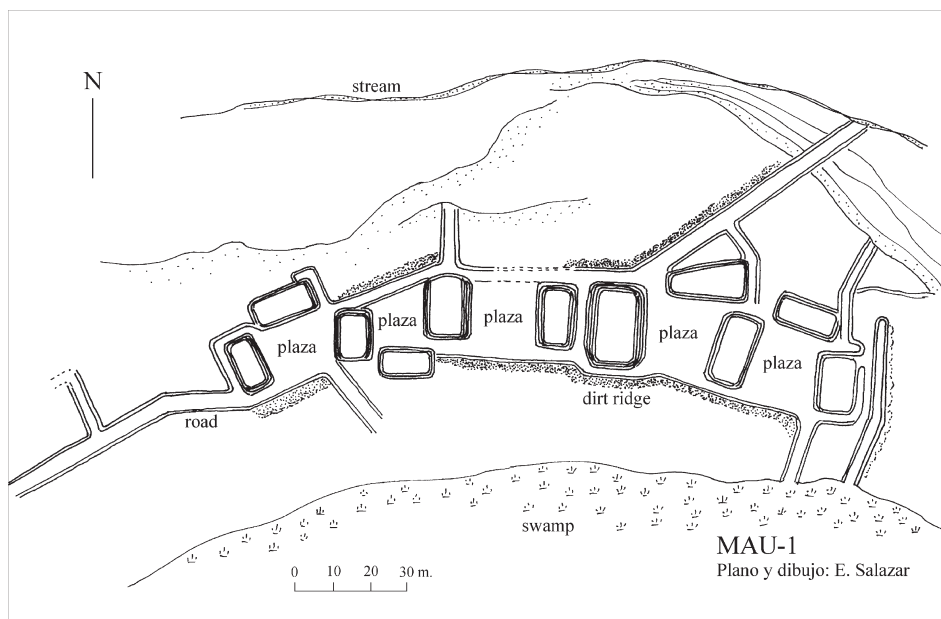


Figure 15.2. Small platform complex in the Mau area. (Ernesto Salazar)

back to this site. It is located in a strip of land 2,400 m long and 300 m wide, flanked on one side by the wall of the Upano River channel, and on the other by the Huapula River. According to Porras (1987:38), the site consists of 180 platforms, grouped in 25 “sub-complexes.” Our survey indicates that these figures may drop drastically, as many platforms registered by Porras are either natural or nonexistent. The Huapula site has three well differentiated sectors. The first is located at the northwest tip of the land strip, where at least 10 plazas are aligned along a 600–700 m-long pre-Columbian road, which enters a “monumental” sector with at least 20 large and tall platforms. Several narrow roads and drainage canals cut across the land, particularly in the vicinity of the Huapula River, shaping other platforms that at first sight seem to be human-made. This is the sector where Porras identified the distribution of platforms as representing a human being and a feline.

Leaving this sector to the southeast, the countryside gives way to a series of small platform complexes and another road, 800 m long, which bifurcates and eventually disappears in the forest. Opposite the Huapula site there are several isolated platform complexes (Figure 15.3), built on strips of land formed by a series of subparallel streams draining into the Huapula River. In this area, sites like Moy, Porras, Zamagolli (Figure 15.4), Payra and Casa Vieja are connected by roads either between themselves or to the Huapula site.

South of Huapula, the land drops in altitude to the Upano plain, where several isolated platform sites with one to several plazas are found: Tunanz, Guapú, Santa Rosa, Kilamope (Figure 15.5), Uyumtza, Yurank and Yuquipa, among others. Size of platforms is variable, but mention should be made of the Tunanz and Yurank sites with 90 m- to 100 m-long platforms.

On the right bank of the river, near the Curva del Upano, there are two complexes, named Edén-1 (Figures 15.6, 15.7) and Edén-2. The first is a medium size complex with

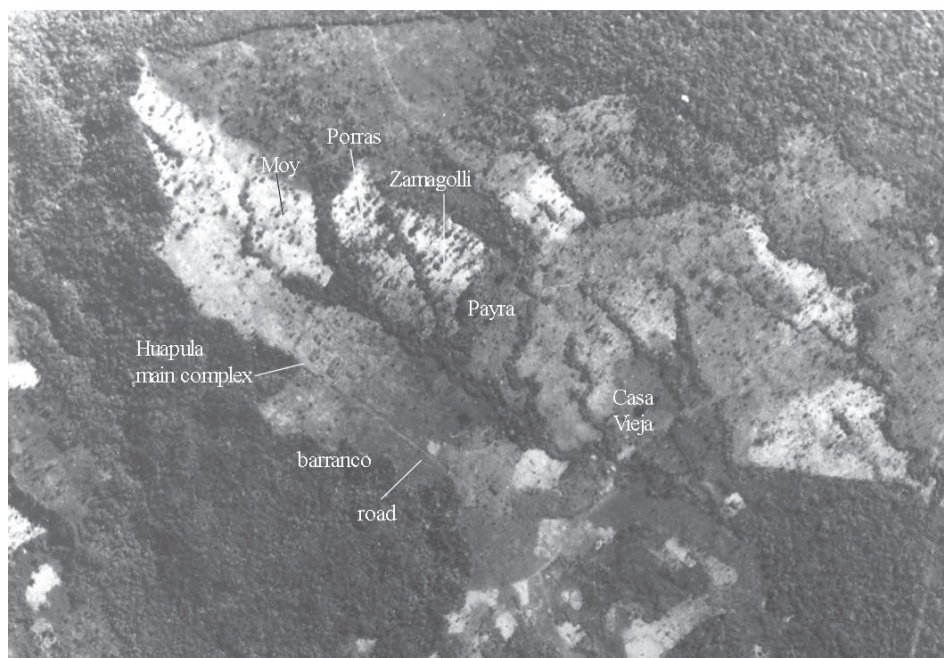


Figure 15.3. Aerial photography of the Huapula site, with indication of adjacent complexes. (Ernesto Salazar)

18 platforms and 6 plazas; the second, a single complex of 1 plaza. Further south, 3 km past the Domono River, lies the Domono site (Figure 15.8), a complex of four platforms about 60 m long. Still further south, at about 5 km, are located La Esperanza (Figure 15.9), and the Carmen site with 100–120 m-long platforms. Three more sites lie in the vicinity apparently connected with Carmen. If that is the case, Carmen would constitute a large platform complex, similar to Mau, Huapula and perhaps Yurank.

At 800 m south of Carmen, lies the Huacho site, two platforms connected by a causeway, in a pattern clearly different from the other complexes so far reviewed. Approaching Macas, the highway cuts across the Providencia site, a large complex with long platforms, natural and artificial. Finally, the southernmost platform site of the upper Upano is the Eulalia site, a one-plaza complex located at Río Blanco, about 5 km south of Macas.

Although the survey has focused on the Upano river banks, an effort has been made to cover inland areas, away from the river. Mound complexes like Domono, Barranco and Huapula are located at the very edge of the barrancos. The Mau complexes are situated 1 km inland, and Casa Vieja and Edén are about 1 km and 2 km, respectively, from the barranco. The farthest sites (Carmen, Huacho, Providencia and Uyumtza) are located between 2,700–4,000 m away from the barranco. Perhaps moundbuilding did not extend sideways (further in) because of the geographical barrier represented by the mountain ranges flanking the valley. However, up north, between the Curva del Upano and the Palora River, there is a large plain suitable for mound settlements. Preliminary explorations carried out in the area led to the discovery of the Caivinahua and Sinai sites in the vicinity of Sinai, and three others in Tres Marías. Furthermore, a limited survey carried out under my direction by students (Pazmiño and Flores 2003) yielded 15 more platform sites in the Río Chiguaza

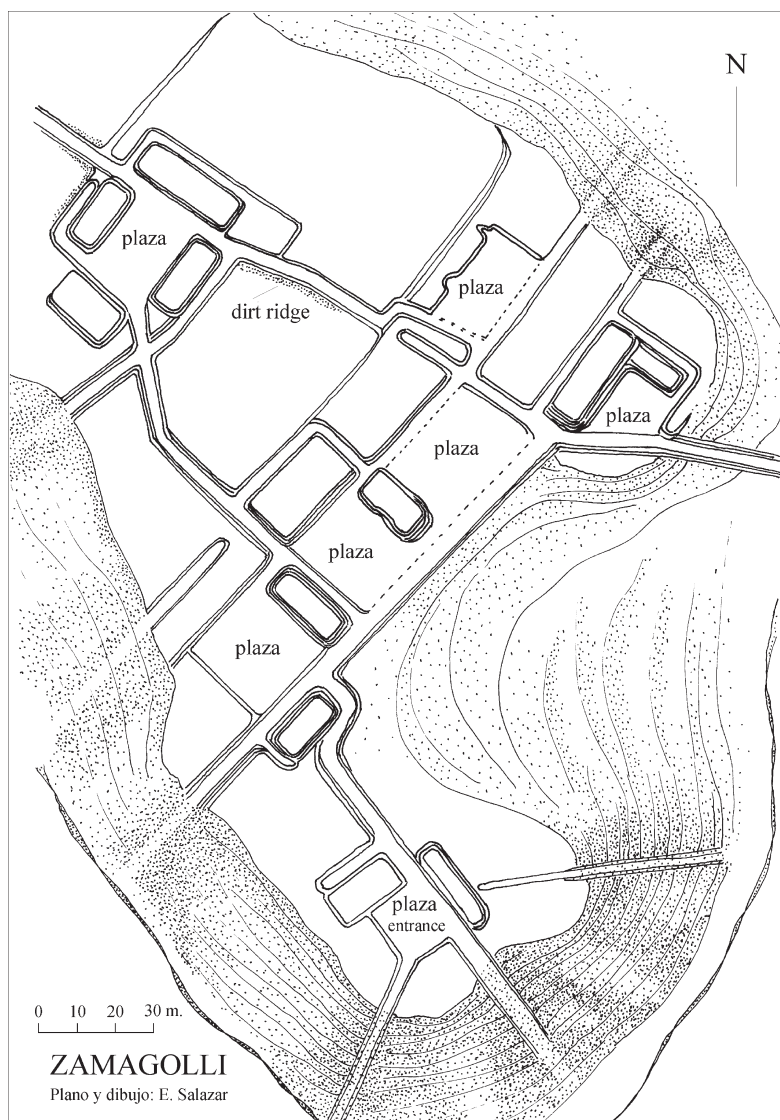


Figure 15.4. Zamagolli, a “satellite” complex adjacent to the Huapula site. (Ernesto Salazar)

region. No doubt there are still other complexes to be located, but the results so far have been impressive.

MOUNDBUILDING IN THE UPPER UPANO VALLEY

Current research has shown that the building of the platform complexes was carefully planned, attending to the conditions and slope of the terrain. As a rule, plazas and platforms were built simultaneously. The procedure was to dig down 1 or 2 m and create a large quadrangular court, accumulating the dirt on the four sides of the perimeter to build the platform mounds. If needed, additional fill may have been taken from nearby road

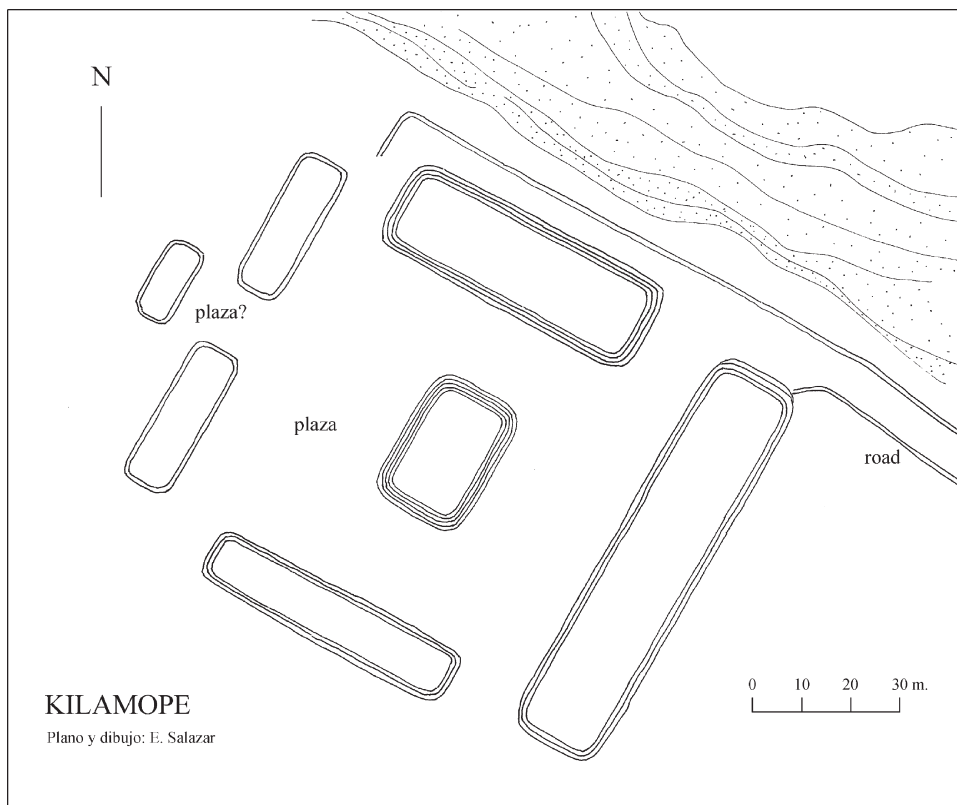


Figure 15.5. Kilamope, a long platform complex with central platform in main plaza. (Ernesto Salazar)

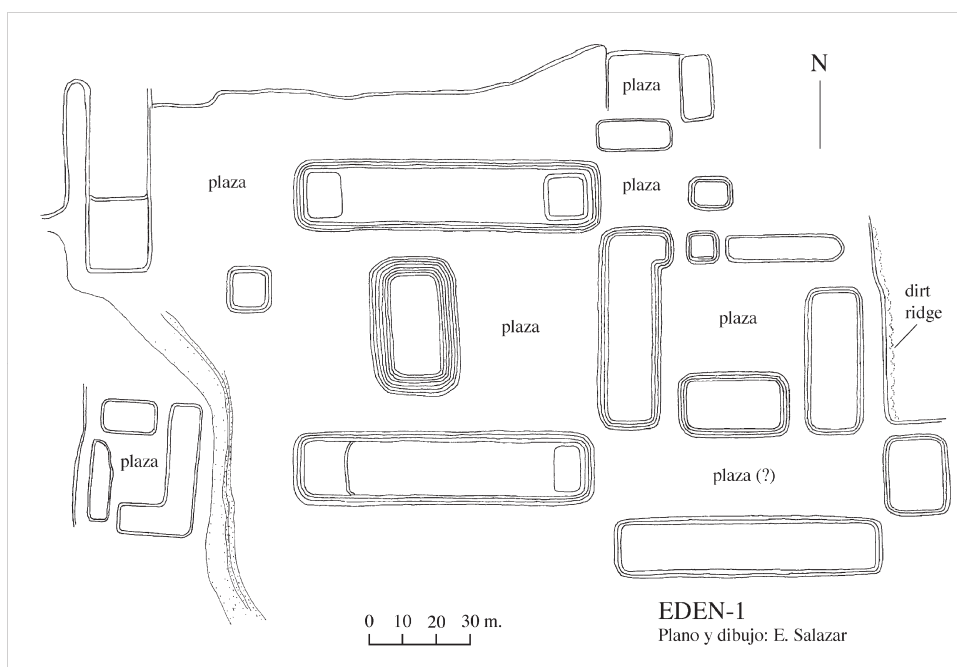


Figure 15.6. Eden 1, a long platform complex, opposite the Huapula site, across the Upano River. (Ernesto Salazar)



Figure 15.7. Aerial photograph of Eden 1 complex. (Ernesto Salazar)



Figure 15.8. Aerial view of the Domono complex. (Ernesto Salazar)

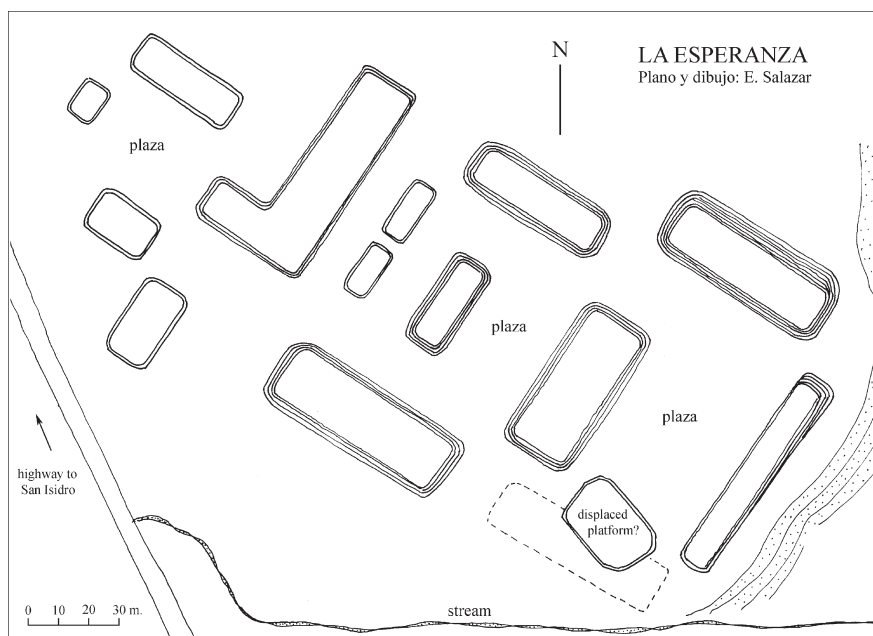


Figure 15.9. La Esperanza, a long platform complex, apparently disturbed. (Ernesto Salazar)

construction, or from the nearest quebrada bank. The main complex of the Huapula site occupies a large surface area, most of which has been dug out and leveled, so we can appreciate that its construction may have taken several years.

It should be pointed out that not all the platforms of a complex are necessarily human-made. Often, the ancient Upano simply took advantage of a prominence, trimming the sides to give the impression of an artificial platform. On flat terrain, the construction of long and straight ditches (roads or “streets”?) at the perimeter of a rectangular piece of land, isolated a fake platform, not visible from the surface of the land (as no accumulation of dirt occurred), but appreciated as such by a passer-by using the deep road.

A striking feature of the upper Upano settlements is a road system connecting plazas within a site, complexes within an area, and occupied areas across the land (regional roads). Upano roads are usually long and straight U-shaped ditches, dug to different depths, depending on the area they are cutting across. “In town” they may be barely 50 cm deep and 1 m wide, but “in country” they are 2 m deep and 2–4 m wide (only on the walking path). To alleviate walking on slopes, the depth of a road may be 3 to 4 m. The dirt from ditches was usually accumulated on one or both sides of the road. Regional roads can be seen at stretches on both banks of the Upano River. They are much wider (10 m at least), dug at certain tracts, or, in open country, taking advantage of a stream bank, or the neck formed by two hills. Regional roads are more visible in the northernmost area of the Upano Valley, whereas in the south, modern highway construction and farming have obliterated them.

The spatial distribution of platforms and plazas depends heavily on local topography and, of course, the nature of the settlement. In the upper Upano there are at least three settlement modes. *Single plaza sites*, often with an additional central platform, are usually large,

such as Tunanz, Domono, and Santa Rosa. *Multiple plaza sites*, such as Porras, Payra, Zamagolli, have an average of 8 plazas. *Large complexes*, such as Huapula, Mau and Carmen, have 20 and more plazas. An interesting feature of some multiple plaza sites and large complexes is the existence of a small plaza (or just a couple of platforms) isolated from the main complex, but linked to it by a road. As these plazas are located near a stream or a ravine, perhaps they served as check-points for visitors coming to the main complex.

The orientation of platform complexes, could be established only on large sites where an axis could be determined. Porras, for example, proposed that Huapula's axis was oriented towards the northwest, where the Sangay Volcano is located. However, our survey indicates that the strips of land on which sites have been built are often oriented in a NW-SE direction, precluding symbolic interpretation in favor of a practical use of topography.

Since the road system connects most upper Upano sites, it is reasonable to think that they are largely contemporaneous. Consequently, social relations between inhabitants of monumental complexes from both sides of the river imply routine crossings from one side to the other. However, the almost vertical cliffs of the barrancos make descent to, and crossing the river almost impossible. In this context it is interesting that in certain locations, steep, natural ridges descend from the uplands to the channel on both sides of the Upano River. At the present examples can be found at Domono and Eden (right bank), and Santa Rosa and Huapula (left bank), where the Upano channel reaches its widest: 2,400 m. Today, modern highways facilitate access to these localities, but the old ridges were used in the 1970s by the colonists taking the uplands of the upper Upano. Moreover, the Mau and Huapula complexes are located on the only section of the river where the barranco is somewhat less abrupt. The Huapula complex itself has several "exit" roads to the barranco, suggesting the existence in pre-Columbian times of other ridges, perhaps destroyed today. Crossing the turbulent river may have been by wading, if the water was low. However, more practical would have been the use of canoes, a vehicle known from the ethnographic present. During the colonization process in the twentieth century, highland colonists crossed the Upano in canoes managed by the skillful Shuar.

There is a long debate in archaeology about the function of mound centers. In the case of upper Upano settlements the issue is pretty much solved: mounds were habitation sites. Excavations in two Huapula platforms, carried out independently by the author and by Stéphen Rostain (1999) revealed large numbers of potsherds and the presence of hearths, milling stones, and corn kernels. In long platforms, the use of space is not yet elucidated, but it is clear now that the superimposed quadrangular platforms on one or both ends of the mound are midden deposits of habitation sites. There is no indication yet about the function of central platforms in the middle of the plaza. As to the plazas themselves, potsherds have been found suggesting human activities. Plaza construction required the removal of the muddy upper layers to reach a deeper yellow layer that is slippery at first, but easy to walk on when dry (present day Shuar use the same technique to build their soccer courts). Therefore, it seems that communal activities took place in plazas, with spectators looking on from the top of the platforms.

A detailed chronology requires more excavations. As of now, dates available from several locations at the Huapula site fall into two groups. The excavation of Complex XI from Huapula (Rostain 1999: 65) shows that between 700 BC to AD 400–600 the site was occupied by the Upano, the builders of the mounds, whose pottery (Figure 15.10) is well known from Porras' (1987) report. Subsequently, between AD 700 and 1200, a new culture, called "Huapula" by Rostain, occupied the site. The most salient pottery trait from this culture is the corrugated jar, found also at the La Providencia and Eulalia sites (Figure 15.11).



Figure 15.10. Upano style vessel from the Huapula complex. (Ernesto Salazar)



Figure 15.11. A Pastaza style corrugated vessel from the Eulalia site. (Ernesto Salazar)

Considering that corrugated ware is a hallmark of Pastaza pottery, Rostain's Huapula culture should be subsumed under this horizon style. Future research will eventually outline the history of mound building in the Upano region at large. For example, natural hills with summits artificially leveled, and complexes with platform layouts different from the ones described here, may prove to be earlier or later than the proposed chronology.

CONCLUSION

An archaeological survey of the upper Upano Valley has shown the existence of at least 70 mound sites, located along the banks of the Upano River and other minor streams in the hinterland. Mounds are long platforms distributed at right angles to form a quadrangular plaza. Often a number of plazas and platforms are built together, forming small and large complexes crisscrossed by roads and streets. The combination of plazas and roads is sometimes so well conceived that one cannot help but admire, if not an incipient urbanism, then at least a carefully planned design, not seen in other similar sites in Amazonia. In Ecuador, mound sites, particularly in the highlands, often lack a sense of order, either because they have been partially destroyed or because no pattern, other than a practical utilization of local topography, has been discerned. So far, the mound complexes found on the coast, near Quevedo (Reindel and Guillaume-Gentil 1995), are the only ones that approach the planning of Upano sites.

Upano platforms are habitation sites; mound complexes are pre-Columbian villages. Perhaps people were grouped around their plazas by blood or craft affinity. There is a clear hierarchy in size and height of platforms within a single complex, as well as in size and complexity among villages. We can even speak of major centers, such as Mau, Huapula, Carmen, Yurank and Caivinahua.

Certainly, some plazas and platforms had ceremonial functions. Indeed, Porras (1987) has suggested that the Huapula site was a ceremonial center, an issue not sufficiently elaborated by him. Size, height, location, and material culture of these features are important factors in determining ceremonialism. In this context, the existence of several waterfalls in the Huapula River, just in front of the main complex and in nearby streams, should not be ignored. This is a topic worth exploring, for in the ethnographic literature of the northwestern Amazon, water, in its various manifestations, has a wide range of symbolic meanings. In this context, it would not be surprising if the turbulent Upano River itself may have been considered sacred by the pre-Columbian riverine culture that lived on its banks.

Of course, the very presence of these large earthworks suggests the existence of a chief or a caste of chiefs with enough political power to call the population to work for months and years in the construction of the monumental complexes. The power base of these lords is a matter to be elucidated with archaeological research. However, it can not be ruled out that the Upano complexes may have been part of an exchange network between the highlands and the Amazon plain. Bruhns et al. (1994) have shown that the red banded incised pottery found at Pirincay and other highland sites may well come from the upper Upano river valley. Also artifacts made of chonta (*Guilielma gassipaes*, a hard tropical wood) have been found in highland sites, particularly in Azuay and Cañar, provinces bordering Upano territory. The archeological evidence stops here—but the ethnohistorical record points to a widespread trade in perishable goods that perhaps can be extrapolated to pre-Columbian times. Oberem (1974) has provided a comprehensive view of the matter, encompassing the Amazonian plain, which involves items ranging from slaves to salt from Huallaga, and from gourds and gold to shamanistic power and pets.

Mound building is a widespread feature in tropical pre-Columbian America. In Amazonia, besides the well known mound sites on Marajó Island in Brazil (Roosevelt 1991; see Chapter 19 in this volume) and Mojos in Bolivia (Denevan 1966, Erickson 1995; see Chapter 46 this volume), Zucchi (1973) has reported artificial mound locations (Hato de la Calzada and Betania) in the western Venezuelan llanos, dated ca. AD 500 (see Chapter 23 in this volume). In the same region (Canagua River region), Redmond and Spencer (1994:433) have found several earthen mound complexes (Late Gavan phase) initially built ca. AD 500–600. Also, in the upper Xingu region, Petersen et al. (2001:99) have reported late mound sites (AD 1500–1700). Earthworks, such as ditches, roads, small mounds and central plazas, are common features of these sites, as well as an evident settlement hierarchy. Furthermore, long and short distance trade is often suggested as a main factor in the development of these settlements. The upper Upano case study adds to the growing appreciation of Amazonia as a land suitable for the emergence of complex societies of a chiefdom nature. As research continues, the sociopolitical and economic structure of mound-building societies can be outlined and explained. Eventually, local adaptations on the Pacific coast, the Andean highlands and the tropical lowlands may be meaningfully compared and contrasted.

REFERENCES

- Bruhns, Karen O., Jim Burton and Arthur Rostoker, 1994, La cerámica “incisa en franjas rojas”: evidencia de intercambio entre la Sierra y el Oriente en el Formativo Tardío del Ecuador. In *Tecnología y Organización de la Producción Cerámica Prehispánica en los Andes*, edited by Izumi Shimada, pp. 53–66. Pontificia Universidad Católica del Perú, Lima.
- Chapman, Ann M., 1976, Puertos de comercio en las civilizaciones azteca y maya. In *Comercio y Mercado en los Imperios Antiguos*, edited by Karl Polanyi, Conrad M. Arensberg and Harry W. Pearson, pp. 163–200. Editorial Labor, Barcelona.
- Erikson, Clark L., 1995, Archaeological methods for the study of ancient landscapes of the Llanos de Mojos in the Bolivian Amazon. In *Archaeology in the Lowland American Tropics. Current Analytical Methods and Recent Applications*, edited by Peter W. Stahl, pp. 66–95. Cambridge University Press, Cambridge.
- Evans, Clifford and Betty J. Meggers, 1968, *Archaeological Investigations on the Río Napo, Ecuador*. Smithsonian Contributions to Anthropology, Vol. 6. Smithsonian Institution Press, Washington, D.C.
- Ekstrom, J. Peter, 1975, Responding to a new ecology: adaptations of colonists in Eastern Ecuador. *Papers in Anthropology* 16 (1): 25–38. Department of Anthropology, University of Oklahoma, Norman.
- Hall, Minard, 1977, *El Volcanismo en el Ecuador*. Instituto Panamericano de Geografía e Historia, Quito.
- Mera, Juan León, 1919, Las cuevas de San Pedro. *Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos* 2 (5): 196–207.
- Oberem, Udo, 1974, Trade and trade goods in the Ecuadorian Montaña. In *Native South Americans. Ethnology of the Least Known Continent*, edited by Patricia J. Lyon, pp. 346–357. Little, Brown, Boston.
- Pazmiño, Estanislao and Fernando Flores, 2003, Taller de Arqueología del Alto Upano. Escuela de Antropología, Universidad Católica del Ecuador, Quito. Ms.
- Petersen, James B., Eduardo G. Neves, and Michael J. Heckenberger, 2001, Gift from the past. Terra preta and prehistoric Amerindian occupation in Amazonia. In *Unknown Amazon. Culture and Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 86–105. The British Museum Press, London.
- Porras, Pedro I., 1971, Reseña histórica de las investigaciones arqueológicas en el oriente ecuatoriano. *Boletín de la Academia Nacional de Historia* 54 (117): 133–145.
- , 1975, *Fase Cosanga*. Ediciones de la Universidad Católica, Quito.
- , 1987, *Investigaciones Arqueológicas a las Faldas del Sangay*. Artes Gráficas Señal, Quito.
- Redmond, Elsa M. and Charles S. Spencer, 1994, Pre-columbian chiefdoms. *National Geographic Research & Exploration* 10 (4): 422–439.
- Reindel, Markus and Nicolas Guillaume-Gentil, 1995, Troisième phase du projet “La Cadena-Quevedo,” Equateur. Prospection 1994. Schweizerisch-Liechtensteinische Stiftung für archäologische Forschungen im Ausland. *Jahresbericht* 1994, pp. 79–117. Bern und Vaduz.

- Roosevelt, Anna C., 1991, *Mondbuilders of the Amazon. Geophysical Archaeology on Marajo Island, Brazil*. Academic Press, New York.
- Rostain, Stéphen, 1999, Secuencia arqueológica en montículos del valle del Upano en la Amazonia Ecuatoriana. *Bulletin de l'Institut Français d'Études Andines* 28 (1): 53–89.
- Salazar Ernesto, 1998a, De vuelta al Sangay. Investigaciones arqueológicas en el Alto Upano, Amazonia Ecuatoriana. *Bulletin de l'Institut Français d'Études Andines* 27 (2): 213–140.
- , 1998b, Naturaleza y distribución de los montículos precolombinos de la cuenca del Alto Upano, Ecuador. In *Intercambio y Comercio entre Costa, Andes y Selva. Arqueología y Etnohistoria de Sudamérica*, edited by Felipe Cárdenas-Arroyo and Tamara L. Bray, pp. 185–211. Departamento de Antropología, Universidad de los Andes, Bogotá.
- , 2000, *Pasado Precolombino de Morona Santiago*. Casa de la Cultura Ecuatoriana, Municipio del Cantón Morona, Macas.
- Zucchi, Alberta, 1973, Prehistoric human occupations of the Western Venezuelan Llanos. *American Antiquity* 38 (2): 182–190.

The Archaeology of the Guianas: An Overview

STÉPHEN ROSTAIN

INTRODUCTION

The Guianas Shield forms an “island” of approximately 1,800,000 km² bordered by the Amazon and Negro rivers, the Casiquiare Canal, the Orinoco River and the Atlantic Ocean. It is constituted by the five Guianas: Venezuelan Guiana, Guyana, Suriname, French Guiana, and Amapá in Brazil (Figure 16.1). As in the Amazonian rainforest, many different natural environments can be distinguished. However, there are three main landscapes that had strong influence on the pre-Columbian peopling: the grassy savannas in the center, the inland rain forest covering most of the area, and the coastal plain.

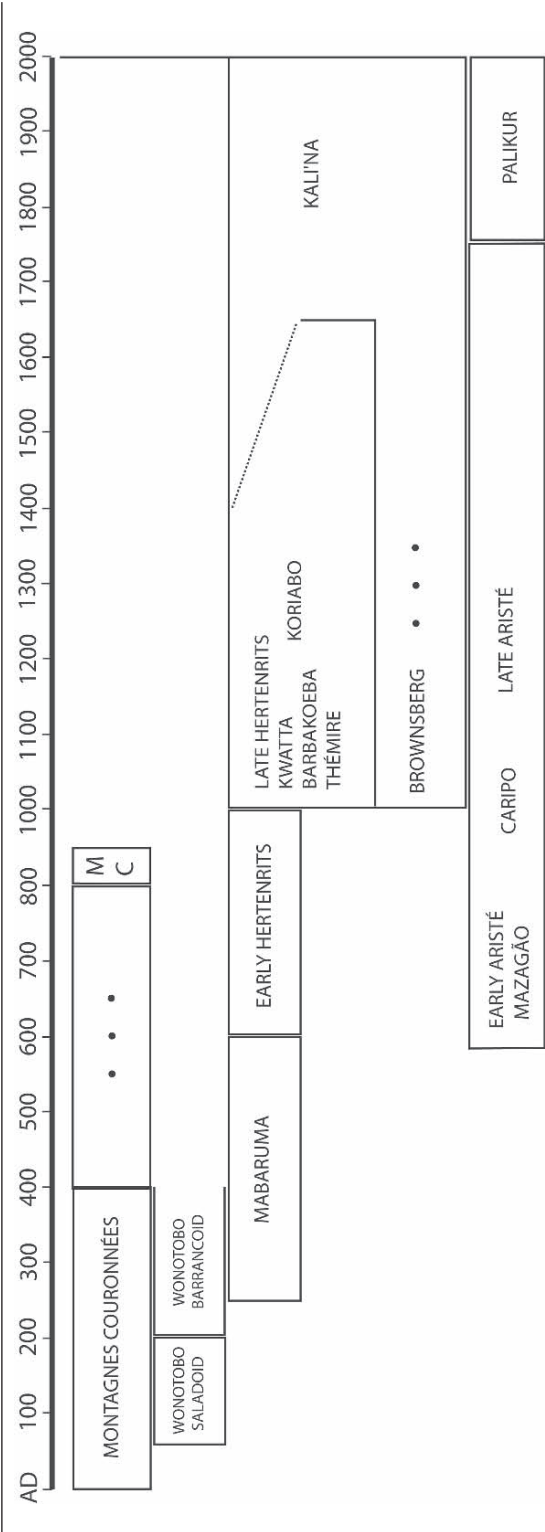
The cultural evolution of the Guianas is divided into five main eras (Tables 16.1, 16.2) that represent different food procurement strategies: nomadic hunter-gatherers; semi-sedentary fishermen-gatherers; the first farmers employing slash-and-burn agriculture; raised fields farmers employing permanent agriculture; and people undergoing cultural changes after AD 1200. It is very probable that groups using these different strategies lived simultaneously, as indicated below.

THE PALEOLITHIC PEOPLING

The first human beings in the Guianas were Paleolithic hunters who arrived ca. 11,000 BC. They lived mainly in savanna areas in the interior of the Guianas. Most finds occur in the Sipaliwini Savanna of southern Suriname and at Tupuken in Venezuelan Guiana (Boomert 1980a). It is probable that at this time, a savanna belt ran from the western Venezuelan coast to the center of the Guianas, i.e., southern Guyana, Suriname and French Guiana (Versteeg 2003). These savannas are very flat extended surfaces covered by high grass, where rounded hills, with occasional rock shelters, emerge in some places.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

Table 16. 2. Chronological table of the Guianas, AD 1-2000.



The oldest sites with roughly worked stones are dated ca. 11,000 BC in the lower Orinoco, near Tupuken (Cruxent 1972). The 30 Sipaliwini sites in Suriname seem to be slightly more recent: ca. 8000 BC (Versteeg 2003). There are 20 workshops divided between temporary camps sites and specialized sites. The most frequent sites are temporary, with remains of the chippings of one of a few stones probably found during hunting. They consist of a restricted area with some waste flakes and sometimes a projectile point, broken during manufacture. The two specialized sites are much larger, extending over approximately the surface of a football field (Frans C. Bubberman, personal communication). The large surface of these two workshops, the variety of the used rock species, and the great quantity of remains suggest that these sites were regularly used over a long period. The remains consist of retouched stone artifacts such as large projectile points, graters or scrapers, broken tools, waste core, hammer stones, and many waste flakes.

The tools can be divided in four main categories: hammer stones, bifaces, cutting tools, and projectile points. Heavy oval or round quartz pebbles were used as hammer stones to chip other stones. The large bifaces measure up to 20 cm in length. The cutting tools are well-retouched scrapers, graters or knives. The triangular projectile points have four main shapes: with a flat base, with a tang at the base, with a concave base, and with a three-pointed base. The two first types are generally large and could have been used as spearheads, whereas the two other smaller ones were arrowheads. These projectile points are most useful to hunt relatively large animals in open terrain, such as deer or perhaps even mastodons and megatheriums that belong to the Pleistocene megafauna.

It seems that the Sipaliwini hunters did not live in the workshops; they preferred the rock shelters at the foot of the hills. Petroglyphs are present in some of these rock shelters, but they cannot be securely attributed to these groups, because the sherds found in the cave prove that they were inhabited long after the hunters' departure.

Apart from the savanna finds discussed, comparable projectile points were also found in the tropical forest as isolated finds. The interpretation of this pattern of finds is that the main activities of these groups of Paleolithic hunters were concentrated in savanna areas and in the forested margins of these savannas. They burned the savannas and in this way they extended the size of these savannas [Note 1]. For specific purposes such as collecting forest products like seeds and fruits, they made extensive trips into the tropical rain forest.

The first inhabitants of the Guianas had territories with the best hunting grounds and areas where they could find raw materials, for instance the stone sources from which they made their tools. These hunters-gatherers could cross the landscape and get supplies freely because they possessed a large area of natural resources. The archaeological record does not supply us with information on other Indian groups in this part of the world in this time period. For these first inhabitants of the Guianas the "Paradise premise" is valid: they could choose where to live. There is no evidence of any serious rivals.

During the archaeologically unknown time between 8000 and 2500 BC small nomadic bands of hunters-gatherers probably lived in the forest of the interior and on the coast of the Guianas and left behind only few traces of their presence.

THE FIRST VILLAGES AND THEIR ECONOMY

Around 5000 BC—thousands of years after peopling by hunting people—shellfish gatherers settled on the Guianas coast. Sedentarism began, followed later by the invention of pottery and agriculture.

At this time, only the areas with large quantities of shellfish were inhabited. This was at the extreme east on the coast of Pará State, on the right bank of the mouth of the Amazon and on the western coast in Guyana, between the Orinoco delta and the Essequibo River. In Suriname, French Guiana and Amapá, from the Essequibo River up to the Amazon, there is no large colony of shellfish. In this area, the muddy banks brought by the Amazon flux prevent the development of shellfish. The limited amount of shellfish present on the coasts of Suriname, French Guiana and Amapá is not enough to provide food for hunter-gatherer groups. Shell middens have not been found on these coasts up to now, and it is unlikely they will be found in the future, for the reasons outlined above.

On the other hand, shell middens are numerous to the west and east and this is where gathering people settled. On the coasts of Maranhão (Brazil), Guyana and Venezuela, where large quantities of shellfish live, pre-ceramic and early ceramic sites are shell mounds or sambaquis (Mina, Alaka, Warao cultures). These mounds are one of the most impressive prehistoric remains of the Guianas. They were progressively made by the significant consumption and dumping of shellfish. Houses were built atop the mounds, which could reach several meters high. At the mouth of the Amazon, there are 40 sambaquis of the Mina culture, dated between 3700 and 1300 BC. In Guyana, the Alaka culture is dated from 6000-1400 BC (Evans and Meggers 1960; Williams 2003).

More or less at the same time, a tradition of semi-sedentary fishermen-gatherers appeared in the lower Amazon. They based their diet on the intensive exploitation of fish resources, and they began to cultivate some plants. These groups made the first pottery around 5080 BC in the Taperinha site near Santarém, and even earlier ca. 5600 BC in the cave of Pedra Pintada. In this last site, ceramic production continued up to 2500 BC (Roosevelt et al. 1991; Roosevelt 1995). It is probably that they first used gourd vessels and impermeable baskets. Pottery was necessary in order to cook by boiling some of the plants to make them digestible for humans (Oliver 2001). The first ceramic vessels had simple shapes, rarely decorated with simple motifs.

The presence of polished stone axes in one sambaqui of Mina culture, dated 1900-1500 BC, suggests incipient agriculture. However, neither Mina culture nor Alaka culture have yielded evidence of domesticated plants. They could have begun to cultivate some plants, but their diet was based on fishing and shellfish gathering. In other areas of Amazonia, scant data indicate the beginning of agriculture probably by the slash-and-burn technique between 4000 and 3000 BC. For example, maize remains dated at 3300 BC have been collected in the Ayauchi Lake in Ecuadorian Amazonia, at the foot of the Andes (Bush et al. 1989).

The oldest ceramic style actually recognized in Amazonia occurs at Taperinha, a sambaqui near Santarém, dated ca. 5700-4300 BC. It has plain pottery tempered with crushed shells that looks like pottery of the Early Alaka and Mina cultures (Roosevelt et al. 1991). Whether Early Alaka pottery of the Guyana coast (and Mina of the Amazon mouth area) has a similar ancient age still has to be proven.

SEDENTARY AGRICULTURAL VILLAGES AND ASSOCIATED CERAMIC MARKERS

Plant cultivation marks a new cultural step. The archaeological record shows several sedentary villages of hunter-farmers in various places of Amazonia from 2500 BC on. These first farmers cultivated bitter manioc (*Manihot esculenta* and *utilissima*) in small fields opened by the slash-and-burn system in the forest.

From 2500-1500 BC, elaborated pottery appeared in various sites throughout Amazonia and Guianas. The earliest sites had a preferential location in the flood plains on the banks of the large rivers, such as the La Gruta-Ronquín site on the middle Orinoco (2600-1100 BC). The pottery of this site is attributed to the Saladoid Tradition, which is characterized by elaborate decoration with white-on-red geometrical motifs and zoomorphic adornos with wide incisions applied on the vessel rims (Cruxent and Rouse 1958-59). La Gruta pottery is dated 2100 BC and the Ronquín pottery 1600-1100 BC (Roosevelt 1980).

In Suriname, the earliest ceramics are found in the Kaurikreek site (Figure 16.2), located along a small creek and dated to 2200-1750 BC, which shares aspects with the Venezuelan Saladoid Tradition, especially the La Gruta-Ronquín style (Versteeg 1978). The Kaurikreek pottery decoration is characterized by thin strips of clay applied in geometrical patterns onto the vessel (Figure 16.2:1-2) and very stylized zoomorphic adornos representing frogs, jaguars or birds (Figure 16.2:3-4). Wide handles sometimes have a pointed lug.

Later Saladoid sites are found inland in Guyana and in west Suriname. The Wonotobo site, located on the bank of the Corantijn River in Suriname, is dated between AD 70 and 200 (Boomert 1983; Versteeg 2003). The Saladoid Tradition began in the lower Orinoco before it spread to the north in the Antilles and to the east up to western Suriname.

The Saladoid Wonotobo pottery decoration is characterized by rectilinear and curvilinear motifs painted white-on-red, sometimes with thin incisions (Figure 16.2:5-6), and by thin-zoned crosshatched incisions (Figure 16.2:8). The wide handles with a pointed lug resemble those of Kaurikreek (Figure 16.2:7). The remarkable similarity between Wonotobo pottery and Saladoid ceramics of the Antilles suggests that these people probably shared more characteristics than only material culture. The excavation of the Golden Rock site in St. Eustatius helps us understand how a Saladoid village was organized (Versteeg and Schinkel 1992). In this village, dated at AD 500-800, large rounded malocas 14-19 m diameter surrounded a ceremonial plaza while the dump area or midden was set up behind the houses (Figure 16.3).

Later, the Saladoid Tradition is replaced by the Barrancoid Tradition and in Wonotobo it seems that the Barrancoid influence occurred directly after the Saladoid occupation (Versteeg 2003). Barrancoid pottery decoration is quite different from Saladoid: elaborated motifs made with wide curvilinear incisions (Figure 16.4:1-2-3-4) and sometimes punctations often on an everted rim, abstract or naturalistic zoomorphic adornos with wide incisions (Figure 16.4:5-6-7) and, for the first time in the pottery of the Guianas, some anthropomorphic representations (Figure 16.4:8). It must be noted that most of the animal and human adornos are not very realistic but probably represent forest spirits or zoomorphized human beings. The Barrancoid Tradition is represented in the Guyana coastal area by the Mabaruma and the Abary cultures (Evans and Meggers 1960).

INCREASING COMPLEXITY

Later, agriculture developed in the fertile coastal plains becoming an elaborate technology employing raised and drained fields. This agricultural improvement is associated with increasing social complexity, a stronger hierarchy, specialization of some activities like ceremonies and crafts, the definition of territories, and the intensification of trade networks.

From AD 300 to 650, few mounds were built in a restricted area of the extreme west of Suriname and east Guyana coast. In Suriname, Indians of the Mabaruma culture (derived from the Barrancoid Tradition of the lower Orinoco) raised two neighbouring mounds,

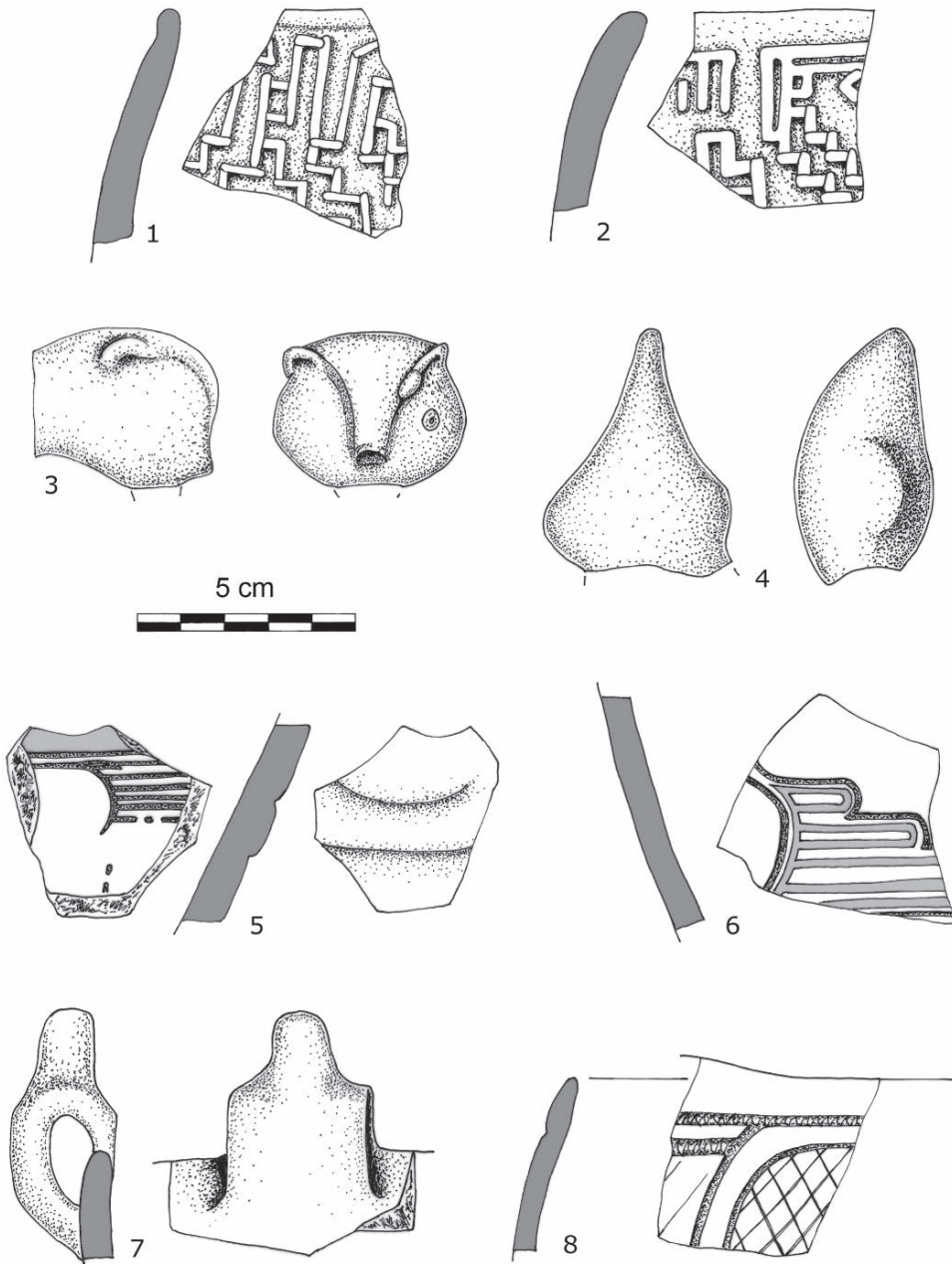


Figure 16.2. Saladoid pottery from Suriname. 1-2. thin strips of clay applied, Kaurikreek site. 3-4. zoomorphic adornos, Kaurikreek site. 5-6. white and red (= grey) painting, Wonotobo site. 7. wide handle with a lug, Wonotobo site. 8. thin zoned crosshatched incisions, Wonotobo site. (Stéphen Rostain)

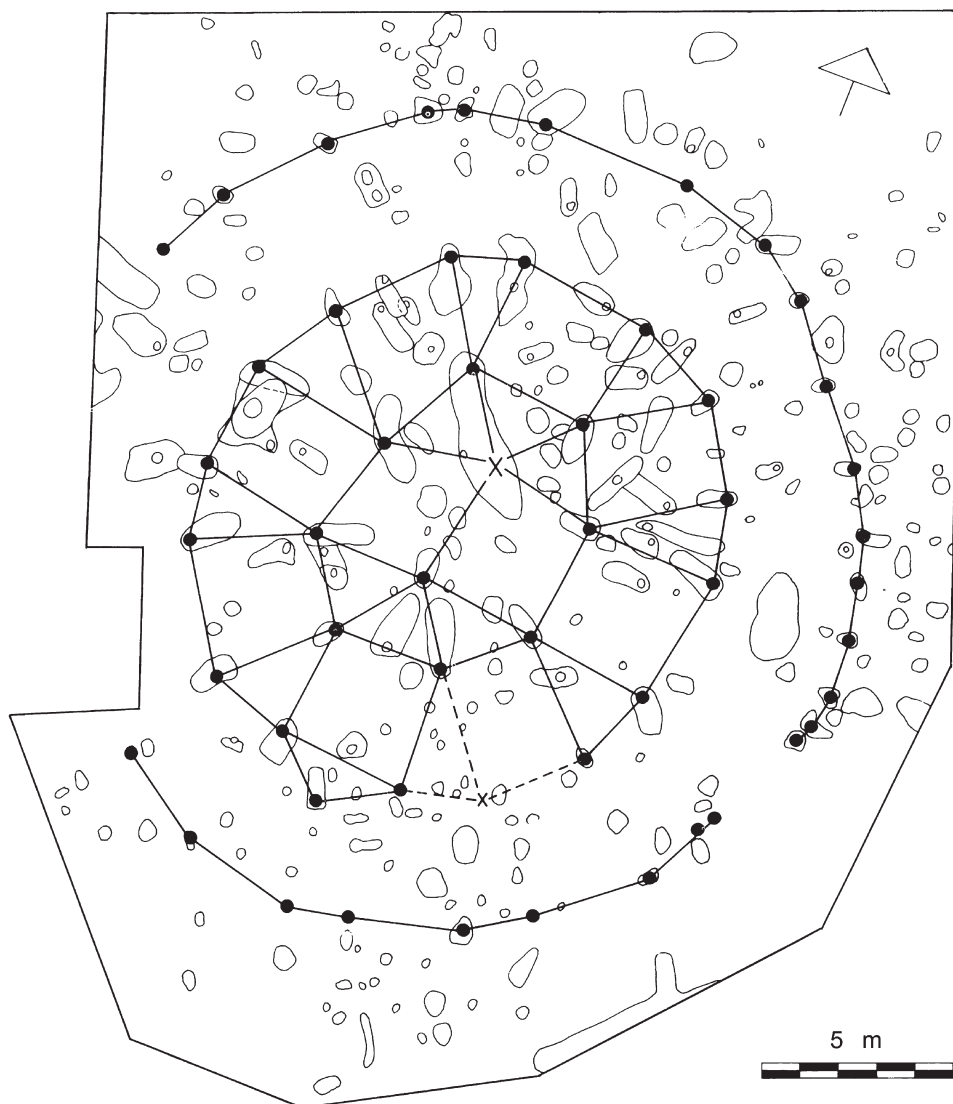


Figure 16.3. Saladoid house floor with what may be two large windbreaks, at Golden Rock site, St. Eustatius (after Versteeg and Schinkel 1992:160). Black circles are postholes and dark lines are reconstructions of framing, although multiple occupations confuse interpretation. Thirteen other structures were found in this site.

Buckleburg-1 and -2, along a small creek and surrounded by a net of quadrangular raised fields (Versteeg 1985). The Buckleburg pottery decoration shares various aspects, especially the wide incised motifs, with the Barrancoid ceramic of Wonotobo.

If the Guianas coast remained relatively sparsely inhabited during the initial period, the situation changed radically with the arrival of new cultures from AD 700. Barrancoid groups were replaced or mixed with people of the Arauquinoid Tradition. This tradition appeared around AD 500 in the area between the eastern Venezuelan Llanos and the Río Negro and the Río Solimões confluence (Boomert 1980b). The most ancient sites with

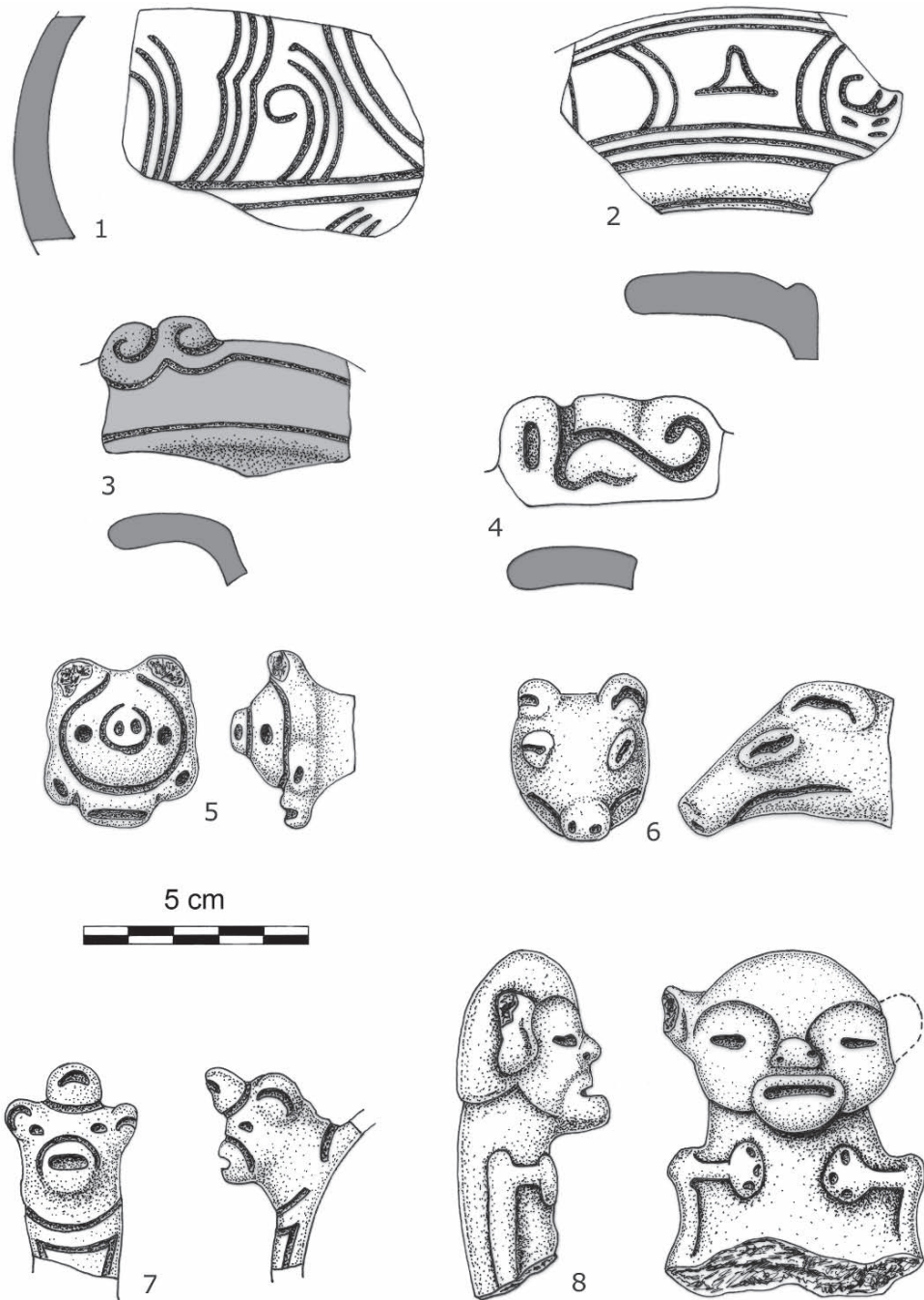


Figure 16.4. Barrancoid pottery from the Wonotobo site in Suriname. 1-2. wide incisions. 3-4. modelled and wide incised rim (grey = red painting). 5-6-7. zoomorphic adorns. 8. anthropomorphic adorn. (Stéphen Rostain)

typical Arauquinoid pottery are located near the confluence of the Apure and the Orinoco rivers (Cruxent and Rouse 1958–59). The same tradition is found on the lower and middle Amazon River, where it is known as the Incised-and-Punctuation Tradition (Meggers and Evans 1961). The middle Orinoco Arauquinoid people began to move down the river around AD 500, progressively replacing the old Barrancoid cultures. In the Orinoco delta, they mixed with others groups, such as the Cedeñoid. From this area, new movements took three directions ca. AD 600–700. The Cedeñoid and some Arauquinoid groups went to the Venezuelan western Llanos, where they stayed until the European Conquest. Mixed Cedeñoid-Arauquinoid-Valloid groups or an acculturated Arauquinoid group sailed toward Trinidad and the Antilles. An eastern Arauquinoid movement spread rapidly along the coast of the Guianas (Rostain and Versteeg 2005).

It is possible to distinguish four main Arauquinoid groups on the basis of the geographical areas, the chronological data and the cultural characteristics: Orinoco-Apure, Guianas, lower Amazon, and Antilles.

Around AD 650, the Arauquinoid Tradition spread from the Apure-Orinoco confluence more to the east along the Guianas coast where it formed a specific stylistic group divided in two chronological phases (Rostain and Versteeg 2004). The first Arauquinoid phase seems to be concentrated in the western coast of Suriname. The Hertenrits mound and Wageningen-1 mound, situated on a single creek system, were built up layer by layer from the clay immediately around the mounds, beginning about AD 700. The range of radiocarbon dates shows a gradual rising of the mounds, and dates the different habitation layers between AD 700 and 950. Long and narrow raised fields were built around the mounds. The pottery decoration consists of relatively simple designs such as simple rim incisions and wavy applied clay rolls.

Because of an increase in population, the cultural distribution of the Guianas coast changes around AD 1000. The coast between the Berbice River in Guyana and Cayenne Island in French Guiana was occupied by four Arauquinoid cultures: Hertenrits, Kwatta, Barbakoeba and Thémire. All these cultures inhabited specific territories that are delimited by the main rivers. From AD 650 on, Arauquinoid cultures lived in western coastal Suriname (Versteeg 1985); they stayed in the Guianas at least until AD 1250, some of them surviving to AD 1650.

Western sites are older than the eastern ones. This suggests a progressive movement from the Orinoco to the east, so these cultures must be considered a continuum (Versteeg and Bubberman 1992). The common aspects of the Arauquinoid cultures of the Guianas are: settlement in the coastal plain on sandy ridges or on artificial clay mounds (most of the sites are located less than 20 km from the sea); agriculture on raised fields associated with elaborated water management systems; specialization of specific activities (ceremonial rituals, manufacture of tools and artifacts, trade, intensive agriculture); trans-cultural trade of raw materials or finished productions in a commercial net; common pottery style (similar patterns in the shapes and the decoration); similar ceremonial artifacts (green-stone frog pendants, twin adornos, pregnant female figurines).

The oldest Arauquinoid culture of the Guianas is Hertenrits, found between the Berbice and Coppename rivers, i.e., an area approximately 210 km long and 25 km wide. Although this area is the widest part of the coastal plain, the absence of sandy ridges combined with seasonal inundations render human occupation difficult. For that reason, Hertenrits groups had to build rounded clay mounds above the water level to settle their villages. Hertenrits is the largest of the 8 mounds; it measures 200–320 m in diameter and is 2.5 m high. It is surrounded by a ditch 20 to 100 m wide. Seasonally inundated shallow

canals, interpreted as pathways, run radially connecting the mound to raised fields and other mounds. This proves that the mounds were occupied simultaneously (Boomert 1980b). Two satellite smaller mounds were built diametrically opposite and equidistant from Hertenrits: one at 4 km east and the other one 3 km west. Hertenrits inhabitants precisely organized and managed their territory according to a specific pattern: one main central mound from which pathways ran crossing raised fields areas and connecting secondary mounds.

The mounds are characterized by Hertenrits style pottery. Within this Hertenrits style there is a dichotomy between Early and Late Hertenrits pottery. Early Hertenrits pottery and its culture is the first Arauquinoid manifestation in the Guianas, and it has relatively simple decoration designs such as simple rim incisions and wavy applied clay fillets. Early Hertenrits pottery is found in the lower sections of the Hertenrits mound and in all layers of the Wageningen-1 mound. Late Hertenrits pottery is only found in the youngest (top) section of the Hertenrits mound and in the Prins Bernhard Polder site. This pottery was more elaborated than the Early Hertenrits pottery, with diversification of the decoration (Figure 16.5).

Funerary activities took place on the mounds and different type of burials occurred: direct and primary burial, secondary burial in urn, and mixed (primary and secondary) burial. Other ceremonial activities took place far from the mounds. For example, the Prins Bernhard Polder site, situated in a peaty area far to the west of the mounds, probably served only ceremonial purposes (Versteeg 1985). Many beautiful ceramic artifacts were found in artificial small hills in this site. They were probably used during short periods for specific activities. It can be assumed that the site was not occupied permanently because of the exceptional quantity and quality of elaborate artifacts (Figure 16.5:6) and vessels, and because there is an absence of terra preta (a cultural layer—the black soil formed from garbage, charcoal, ash from the hearths of houses and other human activity) and raised fields.

The Hertenrits culture is an exception in the Guianas Arauquinoid Tradition because of the occupation of floodplain without high sandy ridges. East of the mounds area (see Chapter 17 in this volume), the coastal morphology inhabited by other Arauquinoid cultures is different. Here, east-west oriented sandy ridges cut across the coast parallel to the seashore. These ridges are remains of elevated old sea beaches that confine swampy lands to the interior beyond them. The sandy ridges are narrow (some tens of meters) and very long (several kilometers). They were very attractive for settled villages and most of the Arauquinoid sites are located on these dry areas. Moreover, these extended ridges facilitated an easy east-west communication between the villages along the coast, as was still the case during the post-Columbian period: “It is by these Savannas that we can go by land from Kourou up to Surinam... a road which is relatively familiar to the Savages of these areas” (Barrère 1743: 27). Trade was facilitated by the linear distribution of the villages along the ridges and the products forwarded from place-to-place in east-west and west-east directions.

Three Arauquinoid cultures—Kwatta, Barbakoeba and Thémire—were distributed from the Coppename River up to Cayenne Island, with the villages settled on the sandy ridges or occasionally on the high river banks. It seems that some Arauquinoid villages were dedicated to specific activities: ceramic manufacture, agriculture on raised fields, trade center, ceremonial settlement, etc. Specialized groups lived in a complementary system with others.

The Kwatta culture was located between the Coppename and Suriname rivers, which represents an area 92 km long and 30 km wide. Kwatta is the only Arauquinoid culture that

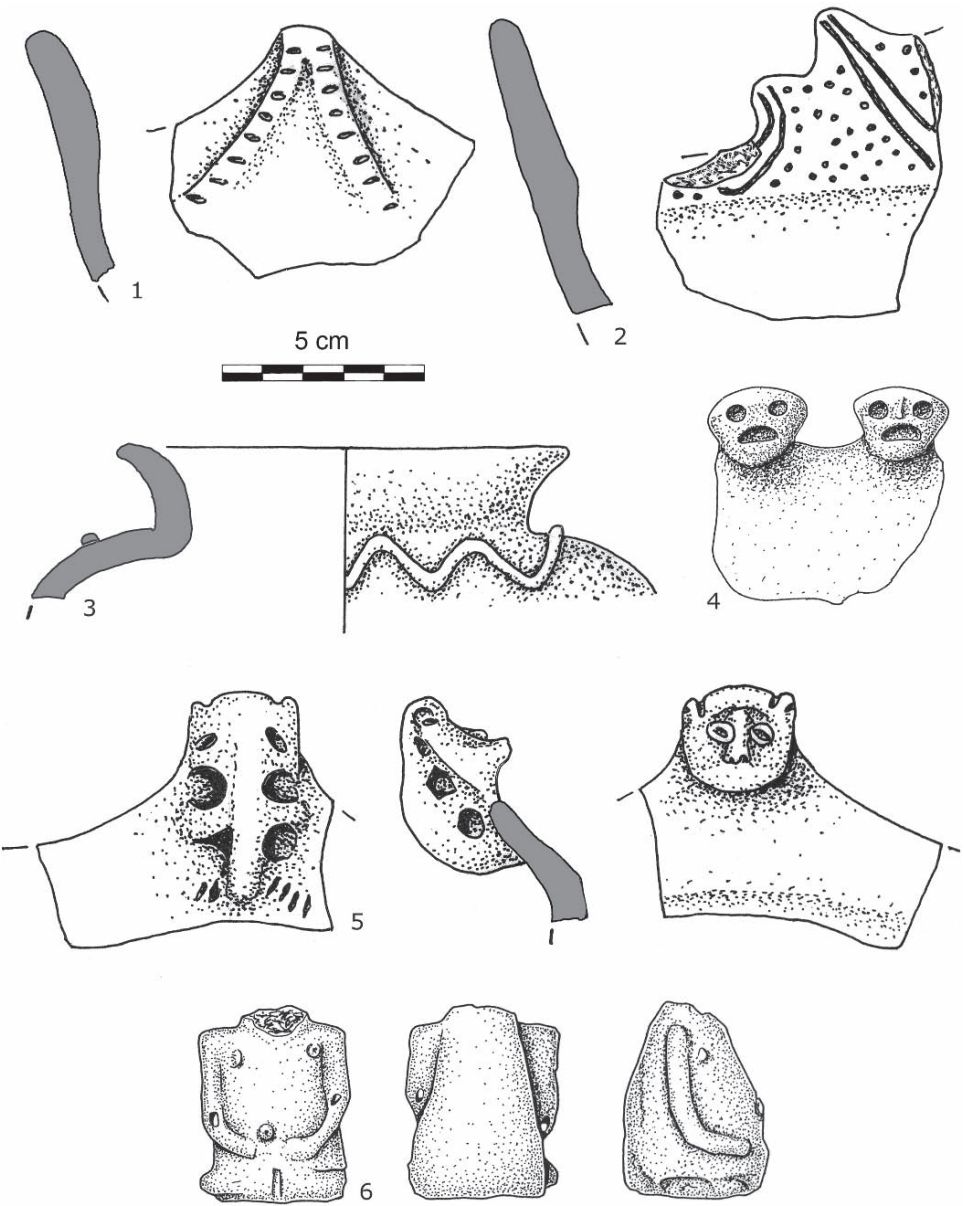


Figure 16.5. Hertenrits pottery from Prins Bernhard Polder site. 1-2. incised and punctuated lobed rims. 3. undulating clay roll applied. 4-5. anthropo-zoomorphic adornos. 6. figurine of a pregnant woman. (Stéphen Rostain)

is not associated with raised fields. Apparently, crops were cultivated on the ridges in a slash-and-burn system; here the richness in shells in the subsoil of the ridges is remarkable, providing a good soil for agriculture.

Kwatta people were more oriented to the manufacture of prestige artifacts, managing trade networks to obtain the raw materials and to exchange their finished products. Kwatta

pottery decoration is characterized by rows of incisions on the lip, bands of red painting, appliqué undulating clay fillets, zoomorphic adornos, appliqué human faces and undulating thickened rims (Figure 16.6:1-2). Some of these decorative motifs are common with Hertenrits culture. Kwatta groups made a great variety of tools and ornaments with stone, shell, bone and probably other raw materials.

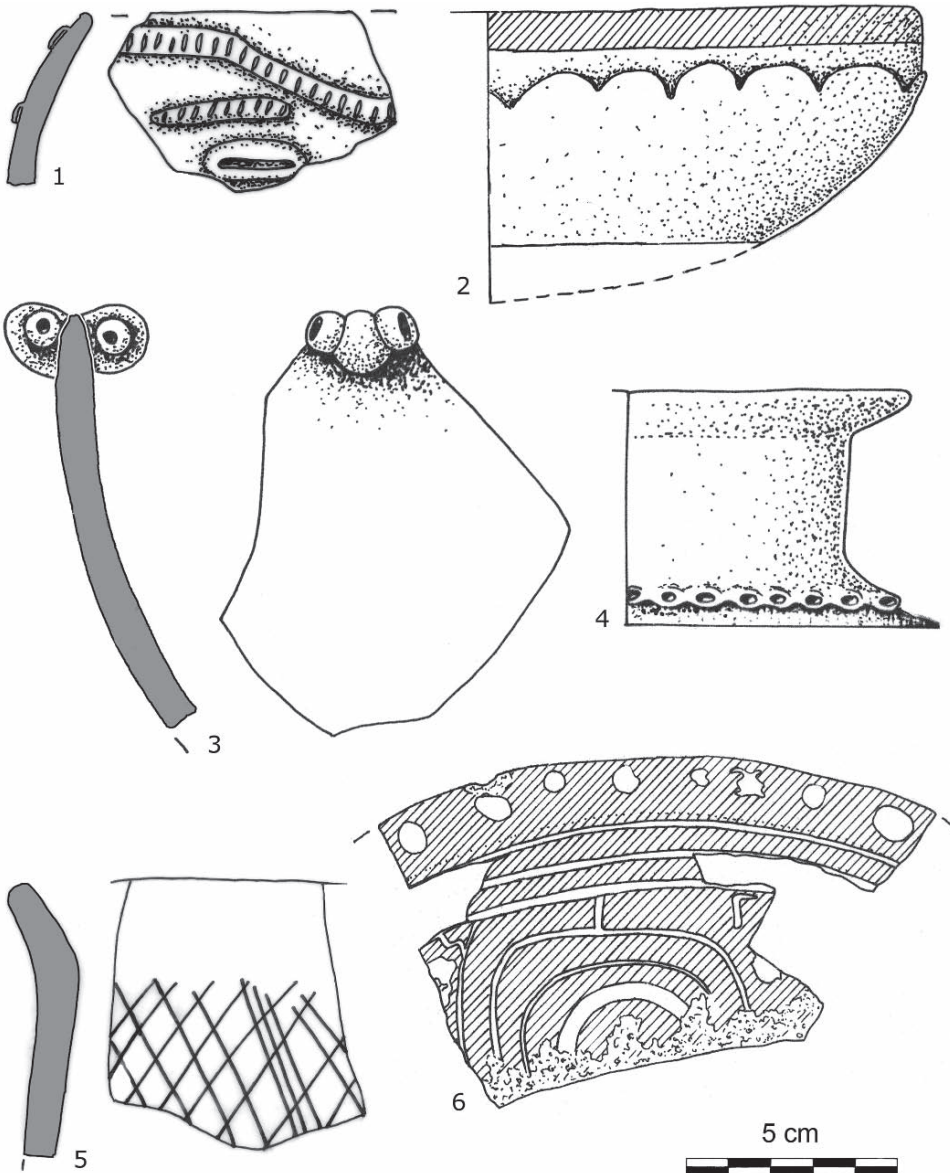


Figure 16.6. Arauquinoid pottery. 1. anthropomorphic appliqué, Kwatta culture. 2. thickened wall and red painting (= hachured), Kwatta culture. 3. zoomorphic adorno, Babarkoebea culture. 4. punctuated appliqué ridge, Barbakoebea culture. 5. parallel incisions, Thémire culture. 6. white on red (= hachured) painting, Thémire culture. (Stéphen Rostain)

Their most famous product was the *muiraquitã*. These are green stone pendants representing mostly frogs. Colonial texts note that it was a precious ornament for the Indians. The archives also describe Indian myths about these objects: the *muiraquitãs* were made by the “Amazons,” warrior women, who molded clay from a lake in the shape of a frog; the clay became hard as a rock when it was taken out of the water. Three centers of *muiraquitã* manufacture are known in Amazonia: the middle Amazon, Valencia Lake in Venezuela and the one in the Kwatta territory near Paramaribo in Suriname. It is probable that most, if not all, of the *muiraquitãs* found in the Arauquinoid sites of the Guianas were produced in Kwatta workshops.

The Kwatta groups organized an efficient trade network between the interior and the coast. No rock is found on the Suriname coastal area, so the Indians had to obtain their stone from the interior. From AD 1000 to 1500, the Brownsberg groups (which were not Arauquinoid) from the central interior of Suriname were specialized in manufacturing cutting tools to export them to the stoneless coastal area of Suriname (Boomert and Kroonenberg 1977). The trade routes were undoubtedly the main river-systems (Suriname and Saramacca rivers) and along the coast the products were traded further to the west and the east via the settlements situated on the old coastal barriers. The Kwatta groups received their stone raw material only from that area.

The Barbakoeba culture extends from the Cottica River in east Suriname up to the Kourou River in west French Guiana, an area 230 km long and 25 km wide. The villages were located on the sandy ridges. Secondary burial in urns was practiced. They were specialized in agriculture (Boomert 1993). Near the coastal settlements enormous areas of fields have been found, generally in the swamps to the south of the sites. The raised fields are square (4×4 m) or rectangular (ca. $3\text{--}4 \times 10$ m) and 50 to 150 cm high. They are often associated with sinuous ditches or rectilinear canals, perpendicular to the sandy ridges, measuring 4 to 8 m wide, 1.5 to 2 m deep and sometimes several kilometers long. Most of the stone tools are connected with agricultural activities: polished axes and chisels, grinding stone and cassava graters.

The Barbakoeba people were not good craftsmen like the Kwatta groups, making coarse pottery. Barbakoeba pottery decoration features appliqué ridges at the base of the neck with incisions, punctations or fingertip impressions, incisions on the lip, single or double lug with eyes, corrugated walls and human face adornos (Figure 16.6:3-4).

The Barbakoeba culture had close relationships with the Hertenrits, Kwatta and Thémire cultures. Koriabo sherds are found in Barbakoeba sites, and Barbakoeba sherds are found in coastal Koriabo sites, indicating that trade and contact existed between the two cultures and that they date to the same period of time.

On the French Guiana central coast, the Barbakoeba culture is gradually replaced by the Thémire culture. The territory of the Thémire culture extends from Cayenne Island to the Kourou River at least, an area approximately 80 km long by 1–5 km wide. The Thémire culture was the most eastern and the latest Arauquinoid manifestation in the Guianas, surviving up to AD 1650 (Rostain 1994a).

Most of the Thémire sites are located on coastal quaternary sandy ridges. Some other sites are located on a beach, or at the foot or top of a hill. Some Thémire sites (but also Barbakoeba sites) are found in the interior near the most northern rapids of the Sinnamary River, approximately 40 km from the coast. These settlements possibly had a function in the trade between inland groups and coastal communities. The coastal sites contain roughly oval middens, related to the disposal of refuse outside communal houses. These refuse areas are situated around a large space with few archaeological remains. This “clean” area is considered to represent a central plaza location in the village.

The Thémire culture is affiliated with the Arauquinoid Tradition, but it includes some Polychrome Tradition influences. Decoration is characterized by rectilinear incisions (Figure 16.6:5) and rows of punctations, modelling and zoomorphic adornos and red and white painting (Figure 16.6:6).

The Thémire culture must have had a frontier position on the coast of the Guianas because their culture had an origin in the Arauquinoid Tradition, but they absorbed important characteristics belonging to the Late Aristé culture. No Thémire trait seems to occur in the Late Aristé pottery style before the Colonial period migrations. This suggests unilateral influence from Aristé on the Thémire culture in prehistoric times. The main difference between the Thémire pottery style and the purely Arauquinoid ones like Barbakoeba, Kwatta, and Hertenrits is the high percentage of painted decorations. Many show simple typical Late Aristé designs. There is not, however, a 1:1 similarity between Thémire painting and Late Aristé painting. For instance, in Late Aristé red-on-white painting predominates, but in Thémire white-on-red painting is more frequent and red-on-white occurs less frequently. The Thémire culture is unique in the archaeology of the Guianas by this association of features belonging to two important and distant cultural centers. It forms the pivotal culture between the Amazon and Orinoco cultural influences (Rostain 1994b).

The Thémire culture was not homogeneous in the area where it is located. Sites around the Kourou River, and those situated more to the west, show ceramics with mainly Arauquinoid characteristics and they are strictly comparable to the Arauquinoid Suriname styles. In Cayenne Island, the similarities between the Arauquinoid sites of Suriname and the Thémire sites of Cayenne Island are rarer. These eastern sites show frequent bichrome painting and polychromy exists, consistent with Polychrome Tradition influence on these sites. The incised and painted designs are sometimes closer to the Aristé styles than to Arauquinoid decoration. The Aristé sherds found in Cayenne Island sites suggest that the contact between Aristé and Thémire people was more than a simple influence. From Cayenne Island toward the Kourou River, Aristé designs became more and more rare while the Arauquinoid designs increase progressively.

These data indeed suggest that we have a frontier situation with a mixture of cultural influences in the various sites. Around AD 1000–1500, the Arauquinoid communities that settled on the western and central French Guiana coast developed a special culture made up of features borrowed from dominating traditions in the Guianas: the Arauquinoid and Polychrome people, respectively. The interpretation of the total of Thémire sites suggests that they were originally Arauquinoid Tradition people who received influence and adopted aspects of the Polychrome Tradition.

Whereas most of the western coast of the Guianas was occupied by Arauquinoid cultures from AD 700 on, the eastern part of the Guianas was dominated by people originating from the middle and the lower Amazon. The Mazagão culture was located in southern Amapá and the Aristé culture in the northern Amapá coast. Samples from two habitation rock shelters and two cave cemeteries in the Ouanary Hills provide the only absolute dates for the Aristé culture. They indicate that this culture began ca. AD 600/625 (Rostain 1994b). The close technical and stylistic similarities between the earliest Aristé and Mazagão types suggest a common origin, probably in the lower Amazon, preceding the two cultures' arrival in Amapá around AD 400 (Meggers and Evans 1957).

The territory of the Aristé culture extended along the coast at least from the Araguari River in Amapá to the Ouanary Hills in French Guiana, an area approximately 370 km long by 10 to 100 km wide. The villages, smaller than the Arauquinoid ones, were settled on the small hills emerging in the swamps. The large size of the habitation sites, the high density

of cemeteries and rock shelters, and the diversity of ceramic innovations suggest that the lower Oyapock was an important Aristé development center. Coastal hills, which are rare on the coast of the Guianas, obviously were attractive for the Indians. During historic times, confederation leaders of Amapá tribes lived in this area, which is suggestive of its function as an important political center during that period.

The Aristé culture in the Ouanary Hills is characterized by two types of habitation site: "normal" villages or settlements, and rock shelters. Settlements were located on hills or river banks and have surface areas varying from 2,000 to 40,000 m². It is possible to distinguish small sites where a few families could live, and larger sites, where more extensive communities lived together. Historical records of the sixteenth and seventeenth centuries describe several nuclear-family-houses and definitely suggest relatively small houses in Aristé villages.

Rock shelter sites have a small surface area, on average 28 m², and they generally have a flat area in front of the entrance providing a larger living space. Excavations have shown that there is no stratigraphy, and remains can be found up to the rocky subsoil, appearing between 30 and 80 cm deep. It seems that these rock shelters were temporarily inhabited at different times by different people, while the main living units were the villages. The finds in the Ouanary Hills rock shelters suggest a ceremonial function for these sites. These rock shelters may have been used as retreat locations. Some modern Indian groups still use such retreats for isolation, for instance before or after girl/boy puberty rituals, shaman apprenticeships, chief initiations, couvades, mourning, and specific activities like making stone tools or pottery.

Four types of Aristé cemeteries are recognized: (1) cemeteries where urns are arranged in a row on the surface; (2) cemeteries where urns are arranged in a row and buried, but not deeply; (3) cemeteries in caves where urns (varying in number between 1 and 85) are generally put against the wall; (4) pit cemeteries (one measures 2.5 m in depth and 1.2 m in diameter) were dug and then closed with a large granite slab. These pits are present in some places of Amapá where caves are absent. Urns are inside the pits (Figure 16.7).

Most of the 21 cemeteries in Amapá are located on hills near a river (Meggers and Evans 1957). The 12 cemeteries of the Ouanary Hills all are located in caves and contain secondary urn burials. The Early Aristé culture is characterized by secondary urn burial (deposition of the bone remains in an urn after decomposition of the dead body). Late Aristé culture, however, presents another type of urn burial: the dead body was cremated before the remains were deposited in an urn. The latter type is predominant in Late Aristé culture, but the former, older type still occurs (Meggers and Evans 1957).

Eleven megalithic sites are located on the central coast of Amapá, generally on hills, which are characterized by large panoramas. They consist of vertical granite slabs that are arranged in lines, circles or triangles. These sites, undoubtedly ceremonial, were convincingly ascribed to Aristé culture by Boomert (1981). The megalithic sites were perhaps used for rituals similar to those practiced by the seventeenth century Arauakí, Tapajó, and Trombeta of the middle Amazon, with wooden and stone idols. They seem to have been used during fertility, funerary, and marriage rituals (Nordenskiöld 1930).

The archaeological record of the Aristé sites reveals a considerable number of ceremonial sites. In fact, the majority of the sites have a ceremonial rather than a habitation nature. The division might reflect the importance of ceremonial/ritual components in Aristé culture. The specific distribution of the Ouanary Hills sites suggests that the villages were surrounded by different ceremonial sites. The settlements were in the middle of the southern slope, in a central position, on the opposite side from the seashore. The rock

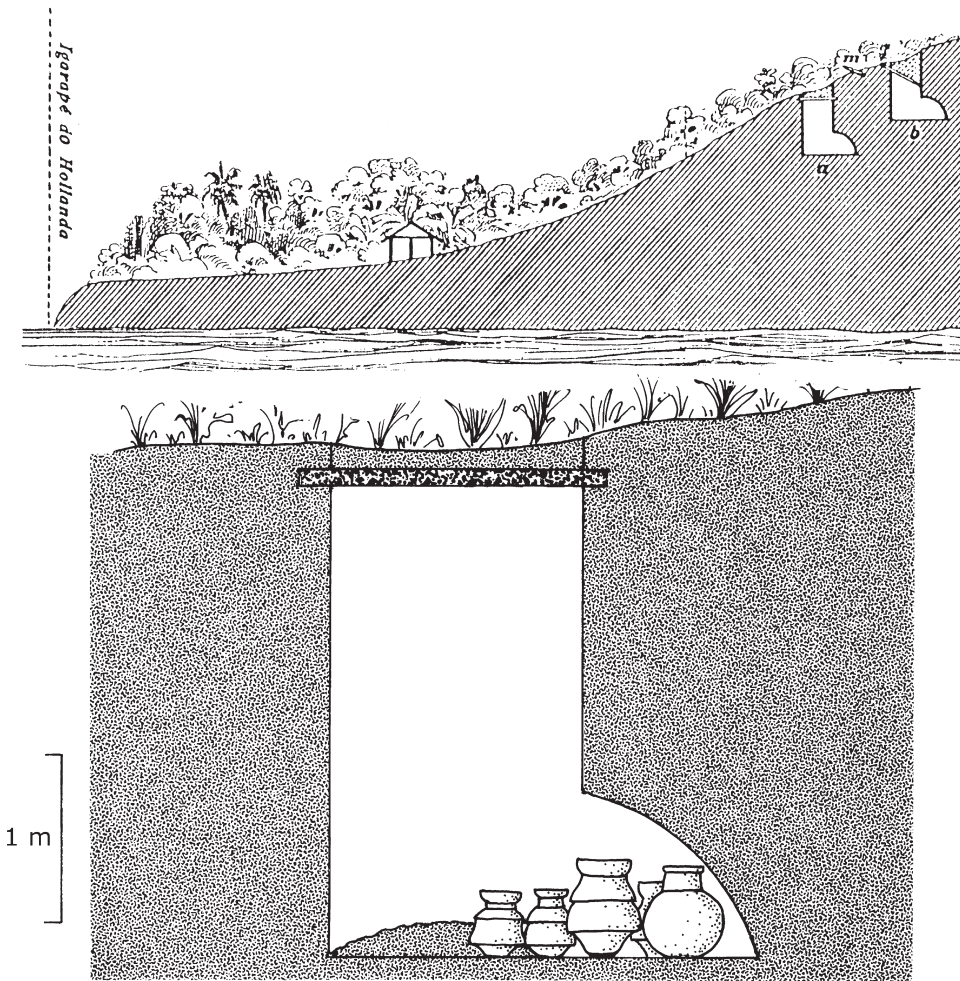


Figure 16.7. The Monte Curú funerary pit (Amapá) provided nineteen Aristé funerary vessels (redrawn after Goeldi, 1900).

shelters, slightly above the villages, probably provided covered areas for temporary isolation periods. Disposal of the dead occurred in caves at the top of the hills face to the north (Rostain 1994b). The ceremonial Aristé sites in Amapá consist of cemeteries in caves or rock shelters, cemeteries that are artificial pits, cemeteries where urns are on the surface or buried, and megalithic sites.

Aristé pottery has two different styles, which represent an early and a late phase in the long-standing chronology of Aristé culture. A distinction is made between pottery that has been found in cemeteries (Figure 16.8), and utilitarian ware that is common in the habitation sites (Figure 16.9). Some “cemetery-ware” was found in the rock shelter sites. In habitation sites this ware is very rare. The Early Aristé style includes red or white painting, incisions and rows of punctations, nail impression or incisions on the lip and on the rim (Figure 16.8:1-2).



Figure 16.8. Late Aristé polychrome funerary urn, Trou Reliquaire cave, Oyapock bay, French Guiana. (Stéphen Rostain)

An intrusive culture appeared at the middle of the sequence. This Caripo culture (named Middle Aristé culture in Rostain 1994a and b) is characterized by repetitive simple, straight or elaborate incisions (Figure 16.9:3) and, sometimes, elaborate paintings. It is similar to the Itacoatiara style on the middle Amazon, which is dated ca. AD 1200–1500

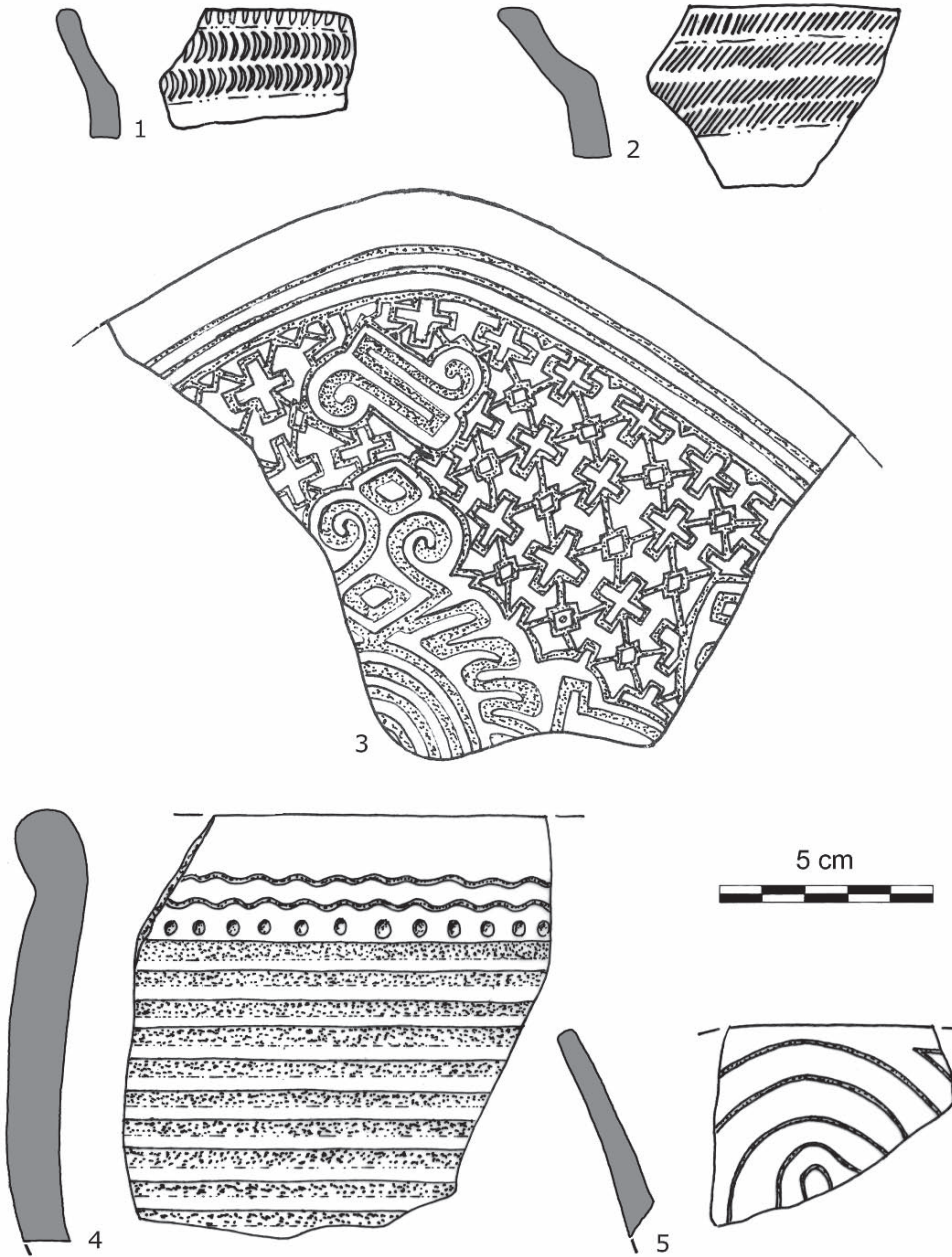


Figure 16.9. Aristé and Caripo domestic pottery. 1-2. nail impressions and incisions on the rim, Early Aristé culture. 3. elaborate incisions, Caripo culture. 4-5. incised rims, Late Aristé. (Stéphen Rostain)

(Hilbert 1968). The Caripo culture is not recognized outside the Ouanary Hills, where it is more or less well represented. In Amapá, only one Caripo painted urn and its lid were found. So, if this culture arrived in the Ouanary Hills from the middle Amazon area, its absence in Amapá suggests that it arrived by another route to the Oyapock than through coastal Amapá. The presence of ceramic copies and systematic Caripo types in the

Ouanary Hills Aristé sites suggests close relationships between migrant people and local populations. However, the fact that Caripo ceramics kept particularities dismisses the hypothesis of a complete assimilation.

The Late Aristé style belongs to the Polychrome Tradition of the lower Amazon. Decoration exhibits repetitive simple straight or elaborate incisions (Figure 16.9:4-5), red painting, and elaborate polychrome painting (red, white, brown, black, yellow) dominated by curves and spirals (Figure 16.8).

European trade artifacts, like glass beads, glass sherds (probably from drinking glasses), nails, knives, rings, chinaware, small bells, and medals are associated with the urns in the cemeteries. Aristé people lived in an area frequently visited by Europeans from the beginning of the colonization on. These groups were less destabilized, at least initially, by the European Conquest than the groups of the lower Amazon. The latter area soon became a territorial battleground between the Portuguese and other Europeans. Traditional hostilities between Indian groups were exacerbated, and the epidemic impact was violent in the mouth of the Amazon, where Indian demography fell more rapidly than in the coastal areas of the Guianas (Grenand and Grenand 1987). This explains the disappearance of Mazagão and Maracá archaeological cultures shortly after the Conquest. On the contrary, thanks to a location far from Europeans, Aristé groups survived longer in northern Amapá.

Aristé cemeteries still were used during colonial times. In the four cemeteries of French Guiana with European trade items, the presence of glass beads, melted and sometimes mixed with burnt human bones, suggests that the dead were burnt with prestigious artifacts. Unfortunately, the beads are not diagnostic enough to be dated precisely. Chronological information is obtained from the study of chinaware from the Trou Delft and Trou Reliquaire cemeteries. The presence of this chinaware, made in the Netherlands between 1670 and 1750, suggests that these sites were still used in the eighteenth century. In fact, these historical period cemeteries seem to represent the latest Aristé culture manifestations, and they show the absorption of new culture elements.

During the first millennium AD, specific sites named “*montagnes couronnées*” by the Maroons appeared in French Guiana (24 sites) and eastern Suriname (1 site). They are located at the top of a low hill and surrounded by a trench. They are oval or round with a diameter between 100 and 300 m. The ditch is 5 to 15 m wide and 1 to 3 m deep. The pottery is not decorated and is very eroded. In French Guiana, three sites are dated between the first and the fourth century (Mazière and Mazière 1997) and the only site in Suriname provided a date of around AD 850 (Versteeg 2003). The function of these sites is still unknown and fortification purposes (Rostain 1994a) or ceremonial function (Versteeg 2003) have been ascribed to the “*montagnes couronnées*.”

KORIABO CULTURE, AD 1200 TO COLONIAL TIMES

Around AD 1200, the Koriabo culture appeared in many places in Guyana, Suriname and French Guiana. The origin of this culture is still unknown and it could be from the middle Amazon or even the center of the Guianas Shield. The Koriabo groups spread from the south to the north up to the Atlantic coast where they met the Arauquinoid people. The available data permit the differentiation of inland Koriabo sites, dated between AD 1200 and 1350, from coastal Koriabo sites, dated between AD 1350 and 1600 (Versteeg and Bubberman 1992). Koriabo trade ware and vessel shape imitations in Kwatta and Barba-koeba sites suggest contemporaneity, at least partial, of the three cultures. The inland sites

are mainly located on the river banks. However, Koriabo groups often settled on previously inhabited locations so, most of their sites are two-component (Versteeg 2003).

The Koriabo culture is unique because it is the only truly Guianas cultural style that is not found out of this area. The homogeneity of this pottery style in decoration and shapes is striking through their enormous territory between the mouth of the Orinoco and the Oyapock River. There are variations in the paste according to the availability of the local raw materials, but specific vessel shapes and features incised and appliqué decoration are very similar in all the sites. Koriabo decoration includes fine incisions, very wide and shallow incisions, modelled appliqué ridges and nubbins representing animals (frog, turtle, etc.) or human faces, zoomorphic adorns (Figure 16.10), white and red and black painting.

Archaeological dates reveal Koriabo migrations from the interior to the coast, in which groups travelled from the watershed in the south along the main rivers to the sea: Oyapock, Approuague, Comté, Sinnamary in French Guiana, Tapanahony plus Maroni, Sipaliwini plus Corantijn in Suriname and Essequibo, Barima in Guyana. Occupations

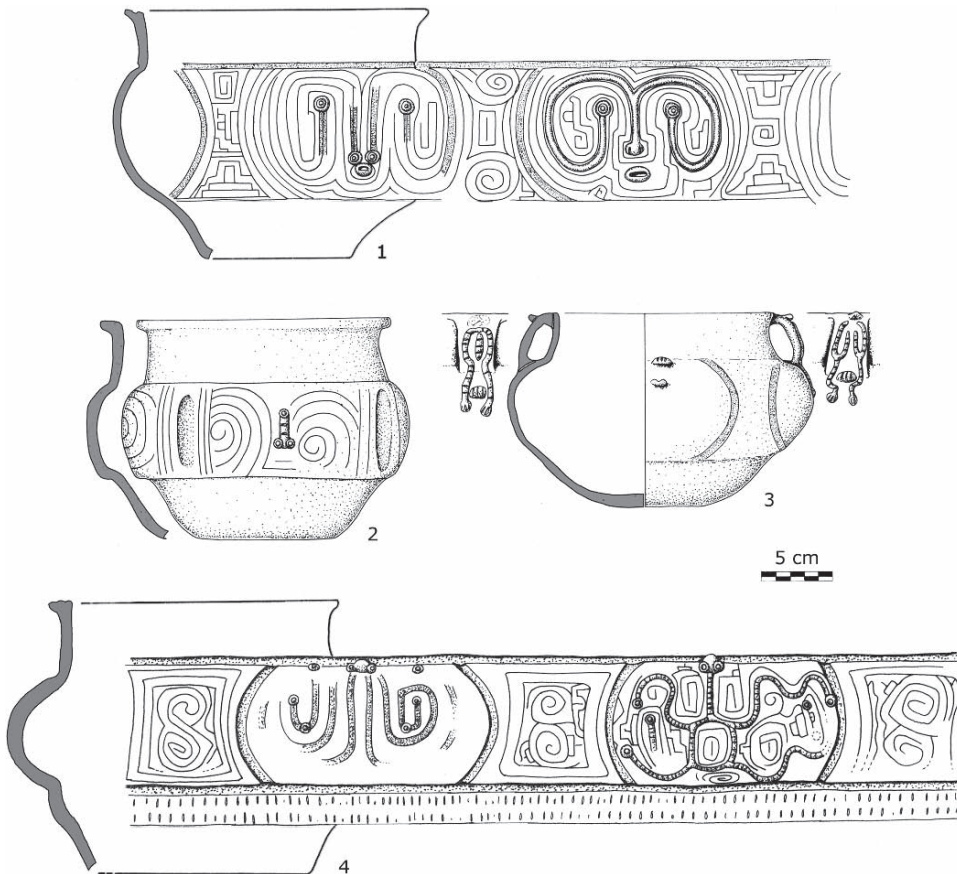


Figure 16.10. Koriabo pottery. Characteristic vessel shape with elaborate incisions and anthropomorphic or zoomorphic appliqué. (Stéphen Rostain)

with Koriabo artifacts bear silent witnesses to these travels, and demonstrate that some of the rivers were important cultural highways.

In this way Koriabo became established in some coastal areas between the Approuague and Barima rivers. The latest mainland Koriabo settlements are located along the coast of the Guianas and in the lower river reaches. Coastal sites of the Barbakoeba, Kwatta, Thémire and Mabaruma cultures have Koriabo ceramics, and it seems that contacts were particularly close with the Kwatta and Barbakoeba cultures.

Kwatta pottery has been found in several coastal Koriabo sites, while Koriabo pottery is found in Kwatta sites. The large number of Koriabo carinated bowls with everted lip, which seems to be a ceremonial vessel, found in several Barbakoeba and Kwatta sites, would be the result of inter-tribal trade (Boomert 1993). Moreover, there are frequently imitations of Koriabo vessel forms by the Kwatta, the Barbakoeba and the Thémire people (Rostain 1994a). In contrast, no Arauquinoid ceramic imitations are seen in the Koriabo pottery repertoire. After its appearance in the coastal area of the Guianas, the Koriabo culture was integrated in inter-tribal dynamics and participated in regional trade networks.

Although seemingly powerful, Koriabo culture did not disperse uniformly along the coast of the Guianas. It met resistance from some communities. Areas under the domination of the Hertenrits culture in west Suriname (Rostain and Versteeg 2004) and the Aristé culture in eastern French Guiana and Amapá were never inhabited by Koriabo groups (Rostain 1994a). The complete absence of Koriabo ceramics in these areas also suggests that no trade existed between these groups and Koriabo people. A Koriabo pot found in the Ti-Jarre cavity in the Ouanary Hills is the only Koriabo artefact in the Aristé territory.

In French Guiana, the Koriabo site of Mapaou in the lower Approuague is dated between AD 1744 and 1801 (Rostain 1994a). Moreover, Dessingy's map of the lower Approuague, drawn in 1764, shows an Akokwa abandoned village located exactly at the location of the Mapaou site. This absolute dating is the only one in the Guianas that places the Koriabo culture in colonial times, and it is important for understanding the latest part of the culture. Mapaou was probably one of the last Koriabo villages in French Guiana. After the sixteenth century, the Koriabo culture had lost its powerful position and was probably only represented by rare settlements, especially in Guyana and French Guiana. Some migrations back toward the inland may have taken place under those conditions.

THE AFTERMATH

The Arauquinoid domination on the western coast of the Guianas began to decrease at the beginning of the second millennium AD. The Hertenrits and Kwatta cultures disappeared gradually in the west, while in the east, the Barbakoeba and Thémire cultures received and integrated new cultural features from inland Koriabo groups. At the same time, the Late Aristé people dominated the eastern coast.

A final blow was given by the arrival of the European in 1499, which provoked a complete destabilization of the Indian world. The changes in Aristé culture are understood as the result of the arrival of new groups. Indians fled some areas to avoid the European wars and slave hunts. Communities migrated from the west and refugees arrived from the lower Orinoco and Trinidad during the seventeenth century—for instance the Yayo from Trinidad about 1590. Other refugees arrived from the lower Amazon during the seventeenth and eighteenth centuries. These immigrations probably disturbed the stability of Aristé groups. The “old” population and the “new” immigrants influenced each other, which resulted in

hybrid communities. Groups, some linked to the Arauquinoid Tradition that dominated the lower Orinoco in this period, immigrated, bringing the Arauquinoid ceramic characteristics that can be seen in modern Palikur pottery. These groups probably introduced the raised field technique that the Palikur employed during the eighteenth century when the population became too large to be supported by slash-and-burn agriculture.

After the sixteenth century, the cultural map of the Guianas was severely disorganized and the picture of the Indian world was changed forever.

CONCLUSION

This overview of the archaeology of the Guianas shows a more or less continuous peopling since 11,000 BC. From 8000 BC up to AD 650, the Guianas were relatively empty and the people basically could settle anywhere they wanted. The situation changed after AD 650 because of an increase in population. Each culture lived in a precise territory generally delimited by the large rivers. The cultural map of the Guianas before the European conquest shows a mosaic of various cultures, which had a complex system of relations. From AD 1500 on, the European Conquest profoundly changed the Indian world.

ACKNOWLEDGMENTS Thanks to Claude Musynski Delpuech for the typesetting of the figures, and to Aad Versteeg for reading and commenting on the text.

NOTE

1. It is noteworthy that, in the Urubus-Kaapor myths of Maranhão State in Brazil, the savannas were made by a big fire lighted by the "Moon" ancestor (Ribeiro 2002).

REFERENCES

- Barrère, Pierre, 1743, *Nouvelle relation de la France Equinoxiale*. Paris.
- Boomert, Arie, 1980a, The Sipaliwini archaeological complex of Surinam: a summary. *Nieuwe West-Indische Gids* 2: 94–107.
- , 1980b, Hertenrits: an Arauquinoid complex in northwest Suriname. *Journal of the Walter Roth Museum of Archaeology and Anthropology* 3 (2): 68–104.
- , 1981, The Taruma phase of southern Suriname. *Journal of the Walter Roth Museum of Archaeology and Anthropology* 4 (1/2): 105–158. Georgetown.
- , 1983, The Saladoid occupation of Wonotobo Falls, western Suriname. *Proceedings of the 9th International Congress for the Study of the Pre-Columbian Cultures of the Lesser Antilles*, pp. 97–120. Montreal.
- , 1993, The Barbakoeba archaeological complex of northeast Suriname. *OSO* 12 (2): 198–222.
- and Solomon B. Kroonenberg, 1977, Manufacture and trade of stone artifacts in prehistoric Surinam. *Ex Horreo IPP* 1951–1976. Cingula 4, pp. 9–46. Amsterdam.
- Bush, Mark B. et al., 1989, A 6000-year history of Amazon maize cultivation. *Nature* 340: 103–105.
- Cruxent, José Maria, 1972, Tupuquén: un yacimiento con lítica de tipo Paleo-Indio. *Acta Científica Venezolana* 23: 1–17.
- and Irving Rouse, 1958–59, *An Archaeological Chronology of Venezuela*. Social Science Monographs, No. 6. Washington, D.C.
- Evans, Clifford and Betty J. Meggers, 1960, *Archeological Investigations in British Guiana*. Bureau of American Ethnology, Bulletin 167. Washington, D.C.
- Goeldi, Emilio A., 1900, *Excavações Archeológicas em 1895*. Memórias do Museu Goeldi. Belém.

- Grenand, Pierre and Françoise Grenand, 1987, La côte d'Amapá, de la bouche de l'Amazonie à la baie d'Oyapock, à travers la tradition orale Palikur. *Boletim do Museu Paraense Emilio Goeldi* 3 (1): 1–77. Belém.
- Hilbert, Peter P., 1968, *Archäologische Untersuchungen am mittleren Amazonas*. Dietrich, Berlin.
- Mazière Guy and Marlène Mazière, 1997, La recherche archéologique en Guyane. In *L'archéologie en Guyane*, pp. 23–54. APPAAG, Cayenne.
- Meggers, Betty J. and Clifford Evans, 1957, *Archaeological Investigations at the Mouth of the Amazon*. Bulletin 177. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- and Clifford Evans, 1961, An experimental formulation of horizon styles in the tropical forest area of South America. In *Essays in Pre-Columbian Art and Archaeology*, edited by Samuel K. Lothrop and others, pp. 372–388. Harvard University Press, Cambridge.
- Nordenskiöld, Erland, 1930, *L'Archéologie du Bassin de l'Amazone*. Ars Americana 1, Paris.
- Oliver, José R., 2001, The archaeology of forest foraging and agricultural production in Amazonia. In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Eduardo G. Neves and Christiana Barreto, pp. 50–85. British Museum Press, London.
- Ribeiro, Darcy, 2002, *Carnets Indiens*. Plon, Paris.
- Roosevelt, Anna C., 1980, *Parmana. Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco*. Academic Press, New York.
- et al., 1991, Eighth millenium pottery from a prehistoric shell midden in the Brazilian Amazon. *Science* 254: 1621–1624.
- Rostain, Stéphane, 1994a, *L'Occupation Amérindienne Ancienne du Littoral de Guyane*. TDM 129. ORSTOM éditions, Paris.
- , 1994b, The French Guiana coast: a key area in prehistory between the Orinoco and Amazon rivers. *Between St. Eustatius and the Guianas*, pp. 53–97. Publication of the St. Eustatius Historical Foundation, No. 3. St. Eustatius.
- and Aad H. Versteeg, 2004, The Arauquinoid tradition in the Guianas. In *Late Ceramic Societies in the Eastern Caribbean*, edited by André Delpuech and Corinne Hofman, pp. 233–250. BAR International Series, 1273. Paris Monographs in American Archaeology, No. 14.
- and Aad H. Versteeg, in press, Territories and territoriality in the Guianas. In *Amazonian Cosmographies. Territoriality and Boundaries*, edited by Augusto Oyuela-Caycedo and Jean-Pierre Chau-meil. University of Arizona Press, Tucson.
- Versteeg, Aad H., 1978, A distinctive kind of pottery in western Suriname. *Mededelingen Surinaams Museum* 29: 16–27.
- , 1985, The Prehistory of the Young Coastal Plain of West Suriname. *Berichten Rijksdienst Oudheidkundig Bodemonderzoek* 35: 653–750.
- , 2003, *Suriname voor Columbus/Suriname before Columbus*. Libri Musei Surinamensis 1. Stichting Surinaams Museum, Paramaribo.
- and Kee Schinkel, 1992, *The Archaeology of St. Eustatius. The Golden Rock Site*. St. Eustatius Historical Foundation 2/Foundation for the Scientific Research in the Caribbean Region 131. St. Eustatius/Amsterdam.
- and Frans C. Bubberman, 1992. *Suriname Before Columbus*. Stichting Surinaams Museum, Mededelingen, 49a, Paramaribo.
- Williams, Denis, 2003, *Prehistoric Guiana*. Ian Randle Publishers, Kingston, Jamaica.

Barrancoid and Arauquinoid Mound Builders in Coastal Suriname

AAD H. VERSTEEG

INTRODUCTION

Several of the pre-Columbian cultures of Suriname constructed sizeable earthworks. The Pondokreek culture made a great circular trench in the interior; the Barbakoeba culture of coastal East Suriname practiced agriculture on raised fields (Versteeg 2003). The Mabaruma and Hertenrits cultures stand apart from these because they made earthen mounds on which they built villages near their raised fields. This chapter discusses the mound builders who lived in the coastal plain of west Suriname from the fourth to thirteenth century AD.

LANDSCAPE

The mounds referred to above were built in an area of coastal Suriname between the Coppename and the Corantijn rivers (Figures 13.1, 16.1, 17.1; see Chapter 16 in this volume). This part of coastal Suriname differs from most of the coastal zones in the Guianas and, for that matter, from most of South America's coasts because of the immense quantity of sediment ejected into the ocean by the Amazon River. Its unique landscape must be discussed first.

The coastal plain of Suriname is divided into the Old and Young Coastal Plains. The southernmost of the two, the Old Coastal Plain (OCP in Figure 17.1), has an elevation of 2–7 masl and is made up of marine clay and fine sands of Pleistocene age. Sea level rose rapidly at the beginning of the Holocene. Valleys cut into the Old Coastal Plain were filled in with clay and peat. From ca. 6200 BP, lateral accretion alternating with phases of erosion became predominant. The northern part, the Young Coastal Plain (YCP in Figure 17.1) developed during the Holocene, that is, during the last ten thousand years after the last ice age (Roeleveld and Van Loon 1979; Wong 1989). The sediments of the Young Coastal Plain are called the Demerara Formation. They are at 0–3 masl and extend up to the present coast.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

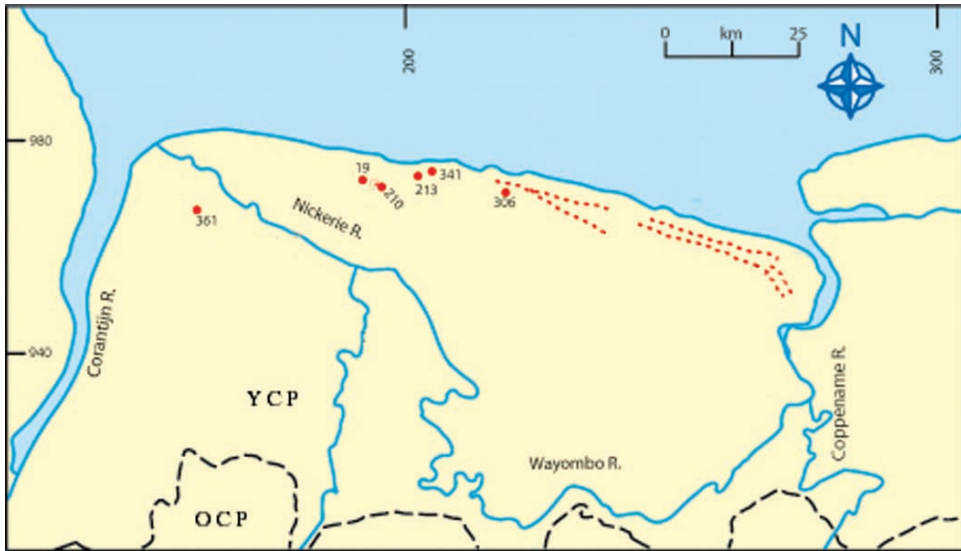


Figure 17.1. Old Coastal Plain (OCP) and Young Coastal Plain (YCP) of West Suriname. Intermittent lines are the sandy cheniers. The mounds are situated west of the chenier area. Sur-306 = Burnside mound. Sur-213 and 341 = Buckleburg-1 and -2 mounds. Sur-210 = Wageningen-1 mound. Sur-19 = Hertenrits mound. Sur-361 = Prins Bernhard Polder site. (For the position of West Suriname in northern South America, see Figure 16.1) (Aad Versteeg)

The Young Coastal Plain was intensively and ingeniously used by some groups of pre-Columbian Indians from ca. AD 300 on. This landscape type is subject to intensive changes. A detailed discussion of this landscape and its formation is essential if we are to understand the Indian cultures of this part of Suriname. These landscape developments occurred during the last millennia and continue at present.

The deposits of the Young Coastal Plain consist mainly of marine clays. These clays are erosion products of the Amazon basin and are transported westward from the mouth of the Amazon River by the North Equatorial Current. Most of the sediment is deposited on the coast of the Guianas, mainly in the form of mudflats and mud banks separated by troughs. The whole system of mud banks and troughs moves westward along the coast, causing a cycle of accretion and abrasion (Augustinus 1978, 1983, 1994).

Coastal erosion occurs at locations where undampened waves can reach the coast. Under such conditions sand separates from mud and washes ashore to form ridges or cheniers. As a result of oblique wave movement, part of the sand is moved westward parallel to the coast (beach drift). These processes cause banks or mudflats to accrue in a westward direction. The migrating banks or mudflats often deflect the north-flowing rivers and creeks to the west, which causes the typical pattern visible along the coastland of Suriname and neighboring countries (for instance, the Nickerie River in Figure 17.1). Some of the sand comes from the Amazon River, and some from nearby rivers such as the Marowijne. Shell material is transported from deeper water towards the coast. Differences in tidal amplitude, structure of sling-mud, availability of sand, shells and clay may cause variations in these processes.

Coastal developments are governed by a roughly 30-year cycle (Augustinus 1978). This does not mean that 30-year cycles can be projected into the past: increased erosion along the Amazon River during the last decades (Augustinus 1983) results in an increased supply of mud and sand along the coasts of the Guianas. Data from the past probably reflect long-term variations, while data from the present yield predominantly short-term variations. Nevertheless, short-term variations and regional diversity probably also played an important role in the past.

Second-hand clay is also supplied by the local river systems. This fluvial clay did not originate in the interior of Suriname; it is marine clay deposited in the past, or transported upriver by special climatic events. These redeposited clays lack calcium carbonate because the coastal waters are acidic from the admixture of large quantities of highly acid river water. This is probably one reason why so few shellfish live in Surinamese coastal waters. Seawater conditions are different east of the Amazon River and west of the Essequibo River. Shellfish was so abundant in those coastal waters that pre-Columbian cultures could base their diet on them (Versteeg and Bubberman 1992:19). In Suriname, however, there are no shell mound sites because shellfish was and still is lacking in sufficient quantities.

The deposits of the Amazon River are enormous in quantity and the coastal processes are complicated. This results in a large coastal plain, partly built up of fertile young clay. The sands have built up sand ridges in some parts of the coastal plain, offering settlement possibilities because they are relatively high, well-drained sand bodies. However, in some parts of the coastal plain, such sandy ridges are lacking.

HUMAN OCCUPATION IN THE COASTAL PLAIN

Ridges or cheniers formed relatively high east-west oriented bodies of sand in eastern and central Suriname as a result of the specific deposition processes discussed above. These were the preferred places of settlement of pre-Columbian Indians in the coastal plain. The cheniers prevented easy access of sea water to the hinterland, keeping the water south of the cheniers fresh.

It is striking that in the specific area where the mounds were built, sizeable cheniers are lacking. Because the fresh-water habitat is indispensable for permanent human habitation, some unknown agent must be postulated as responsible. Perhaps a substantial extension of the coastline to the north, even including cheniers, characterized pre-Columbian conditions, but if so, evidence has long since been washed away.

The coastal plain is made up of fertile, young clay, and it is characterized by plant and animal life adapted to various freshwater, brackish, and saltwater environments. There are abundant systems of creeks and rivers with fewer obstacles such as waterfalls and rapids than in the interior; this makes travel by boat easier.

Dated layers of peat and pollen analysis show that between ca. AD 300 and 1000 freshwater conditions prevailed in the coastal plain of western Suriname, where there are few cheniers. That is the area west of the Burnside mound (Figure 17.2).

Groups of Indians reacted to the changing conditions by raising mounds of clay, with relatively small, square, agricultural plots nearby, consisting of clay bodies surrounded by trenches. This water management system made permanent farming possible. The fertility of raised fields can be sustained by spreading organic sediment from the ditches onto the fields.

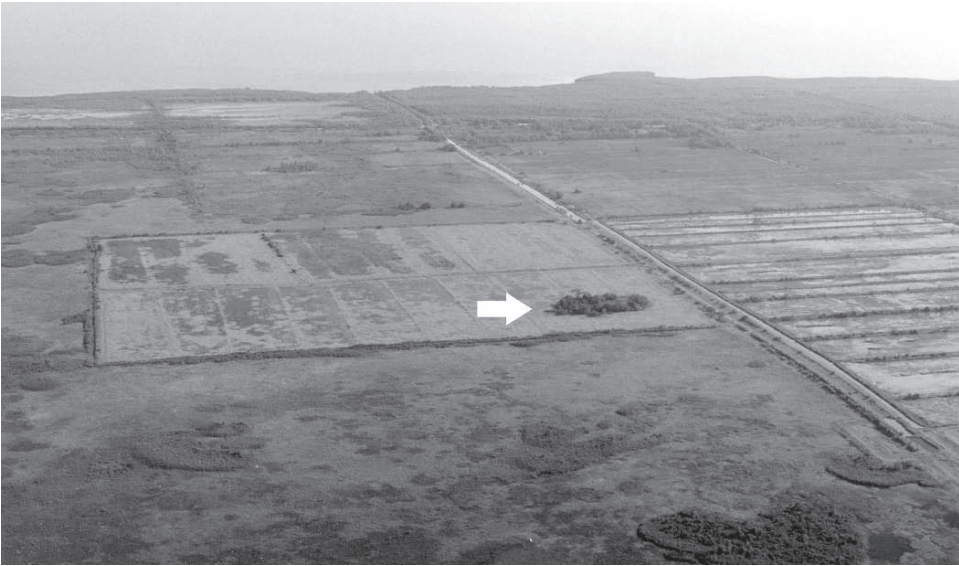


Figure 17.2. The Burnside mound (Sur-306) (arrow) is the easternmost mound in West Suriname. In the background is the Atlantic Ocean. At present this former freshwater swamp is being converted into polders – tracts of land reclaimed through draining – by a channel system. (Aad Versteeg)

RAISED FIELDS AND THE VARZEA

Raised fields in Suriname's coastal plain have been described as artificial várzeas (Versteeg 2003). The fields are enriched by a fertile layer on a regular base, that is, by a natural agent on the várzea, and by an artificial agent in the case of raised fields. In both cases fresh water surrounds the plots. Optimized agricultural production on the várzea became the economic basis for complex Amazonian cultures, such as the Santarém culture. Though all the details are not yet clear, it has been argued (Roosevelt 1987) that events similar to those elsewhere in the world also occurred in Amazonia: groups cultivating várzea areas along the Amazon grew in population numbers and social complexity (i.e., to a chiefdom level) in a relatively short period of time. They are thought to be the physical and intellectual ancestors of the Indians who settled in the middle Orinoco and the lower Amazon from where they influenced and populated surrounding areas, such as the Suriname coast.

Use of the várzea techniques was one of the basic strategies of these people, but it was only applied in areas with suitable soil and hydrology and only when conditions made this laborious system possible. This Amazonian technology arrived in Suriname via the Casiquiare Canal and the Orinoco. And, indeed, we also find mound sites in between, in the Venezuelan Llanos, in combination with raised fields (see Chapter 23 in this volume).

We saw above that cheniers were the preferred settling location in other parts of coastal Suriname, but that these are lacking in the west (Figure 17.1). The reasons for building the mounds in that chenier-poor part of Suriname's coastal plain is that optimal conditions for raised-field agriculture occur precisely there. But village locations had to be built in the swamps as there was no naturally elevated terrain.

Thus the coastal Indians constructed raised agricultural fields in optimal landscape conditions, but where they also had to build clay mounds 100–150 m across so as to create dry locations for settlements.

THE PIONEER MOUND BUILDERS AT BUCKLEBURG

The subsoil of all investigated mounds in Suriname contains a thick layer of peat (Figure 17.3, lowest black layer). On top of this are a large number of grey clay layers about 10–20 cm thick. So these mounds were not constructed in one major operation, but in phases. Archaeologically, these phases are represented by alternating light and dark layers in the mound. The light layers represent deliberate enlargement of the mound, while the dark terra preta (the black surface formed from garbage, charcoal, and ash from the hearths in the houses) represents layers accumulated by human occupation. Artifacts are found concentrated in the darker layers (Figure 17.3).

The archaeological data indicate that around AD 300 a group began to build two mounds, Buckleburg-1 and Buckleburg-2, along the same creek (Figure 17.1). The earliest C¹⁴ date from Buckleburg-1 is 1845 ± 45 BP (GrN-9804) and is based on a sample of wood with traces of burning found at the lowest levels in the mound in the direct vicinity of sherds.

The Buckleburg-1 and Buckleburg-2 mound-villages were surrounded by clusters of rather square, artificially raised fields (Figure 17.4).

The Buckleburg mounds are characterized by Early Mabaruma pottery belonging to the Barrancoid Tradition (Versteeg 1985: 668–685). Only a few sherds have been collected from the surface of the Buckleburg-2 mound, situated to the east-northeast but they suggest cultural similarities between both mounds. Also, the stratigraphy of the two mounds is similar, as demonstrated by a program of drilling (Versteeg 1985: 710).

The pottery of Buckleburg is characterized by broad incisions on the inner lip of everted rims (Figure 17.5), somewhat comparable to the Barrancoid pottery from the Wonotobo site on the Corantijn River. There are also adornos in a typical Mabaruma style (Figure 17.6). A thick griddle fragment was found with impressions of matting: apparently the soft clay was flattened on a mat as the griddle was formed before it was baked. Impressions on sherds are the only preserved remains of the basketry made and used by the Buckleburg people 1600–1700 years ago. The imprints reveal the rather coarse matting on which the griddles were shaped by potters of that early era.

The temper of pottery in the upper layers of the mound is exclusively crushed pottery, but the temper in sherds in the oldest, deep levels contain percentages of different materials such as quartz, charcoal and cariapé, shell, and mica. This is interpreted as the result of activities of a group of newcomers who either brought their pottery with them, or who initially still tempered pottery with materials from a different habitat.

Animal bones indicate that mainly deer and caiman were eaten. Deer probably were hunted with bow and arrow, but it is not clear how the timid caimans were caught. Bones of catfish (Fam. Ariidae) show that fish were also caught. Bones of several species of birds again suggest the use of bow and arrow. However, no remains of bows and arrows were found during the Buckleburg-1 excavations.

The latest dates from the top layers of Buckleburg-1 are ca. AD 700. We have to assume that the mounds were deserted then, and we see that settlements were established further to the west. According to many C¹⁴ dates (Versteeg 2003: 268–269), another pair of mounds was



Figure 17.3. Layers of the Buckleburg-1 mound (Sur-213). The dark bottom layer is peat. The upper dark layers are clay layers on which habitation took place for some period of time, before the mound was made higher with grey clay from the surroundings. (Aad Versteeg)



Figure 17.4. Reconstruction drawing of the Buckleburg-1 and Buckleburg-2 (in the background) mounds. In the raised field complex on the left a man uses a wooden shovel such as was found at the Prins Bernhard Polder site. Such shovels may have been used for building the mounds and the raised agricultural fields. (Aad Versteeg)

built there at exactly this time, with raised fields of a more elongated shape. These mounds, however, are characterized by a different pottery style: the Hertenrits culture. This culture and its pottery style belong to a completely different Venezuelan Tradition (the Arauquinoid) than the Mabaruma pottery that is a member of the Barrancoid Tradition. The most likely interpretation for this change is the immigration of a new group that replaced or absorbed the old people, constructing its own mounds further to the west. Mabaruma pottery like that found in the Buckleburg mounds has not been found in the lower levels of the new mounds, although one sherd of the Hertenrits style was found in the upper levels of the Buckleburg-1 mound (Versteeg 1985: 680). Clay, temper, and the technology of pottery firing are comparable in the Buckleburg-1, Hertenrits, and Wageningen-1 mounds (with the exception of the above-mentioned temper of the oldest Buckleburg pottery), seeming to imply some kind of continuity but it is indisputable that decorative patterns changed completely, probably reflecting a change in population and/or group identity.

Before we proceed to discuss the mounds of the Hertenrits culture, we must discuss the geographical position of the Buckleburg mounds within the Barrancoid dispersion. The Buckleburg-1 and 2 mounds are the easternmost Mabaruma sites and also the easternmost sites in South America that belong to the Barrancoid Tradition. Elsewhere Versteeg (2003: 216–217) has argued that the Wonotobo site was the easternmost site in South America of the Saladoid Tradition. Western Suriname is clearly the frontier not only of the Barrancoid Tradition, but also of the Saladoid Tradition. These data suggest that West Suriname was, for a long time, a frontier area of both these traditions.



Figure 17.5. Barrancoid Mabaruma pottery typical of the first mound builders in Suriname. Buckleburg-1 mound. The top left sherd has a maximum length of 7.6 cm. (Aad Versteeg)

THE HERTENRITS CULTURE

Excavations in the Hertenrits mound were done by Geijskes in 1957 and by Van Der Heide in 1970. Palynological samples from Hertenrits demonstrated how the original salt water regime changed into a fresh water one (Laeyendecker-Roosenburg 1964). The author excavated the Wageningen-1 mound and the Prins Bernhard Polder site in 1978. Hertenrits is unique in Suriname because it is the largest, highest, and most impressive mound (Figure 17.7).

Two mounds, Hertenrits and Wageningen-1, are found along a creek, exactly like the older Buckleburg mounds. But in the case of the Hertenrits site there is more. There are more sites with the same type of pottery—mound sites and non-mound sites—in the same part of Suriname. Except for those furthest west, all are close to clusters of raised fields. The raised fields near the Hertenrits mound are long and narrow. There is a total of



Figure 17.6. Barrancoid Mabaruma adorno typical of the first mound builders in Suriname. Buckleburg-1 mound. Maximum height: 6.2 cm. (Aad Versteeg)



Figure 17.7. The largest mound in Suriname: Hertenrits (Sur-19). It measures ca. 200 x 200 m and is 2.5 m high. The channel is part of a modern polder system. Mechanical cranes on both sides of the channel reveal the scale of the mound. (Aad Versteeg)

four mounds, more or less in a straight line: Wageningen-3, Hertenrits, Wageningen-2 and Wageningen-1 (Figure 17.1). The Burnside mound, the Nickerie-2 site, and the Prins Bernhard Polder site (not mounds) are situated further away. All are characterized by Hertenrits style ceramics. The archaeological material of these sites and the available C¹⁴ dates suggest that all the mound sites (Hertenrits, Wageningen-1, -2, -3, and Burnside) were inhabited around AD 700. In view of material finds, location, and size, the Hertenrits mound probably was the social and political center of this group of settlements (Boomert 1980: 77). As stated above, the Hertenrits mound is the largest and highest mound in Suriname; it was inhabited for a longer period of time than the other sites. This represents a new and more complex situation compared to earlier occupations in Suriname. The cluster of sites has a

clearly hierarchical structure: Hertenrits forms the center, surrounded by a number of satellite sites, while Prins Bernhard Polder appears to hold a special position.

Early and Late Hertenrits

Next to C¹⁴ dating the study of the pottery is the most important tool for distinguishing styles and groups or cultures, and for identifying contacts and developmental changes. Indeed, ceramic analysis reveals a temporal difference within the mound group: Early Hertenrits and Late Hertenrits.

Early Hertenrits is dated to ca. AD 700 to 1000. The pottery is found in the lower habitation levels of the Hertenrits mound and throughout all habitation layers of the Wageningen-1 mound. Early Hertenrits pottery is characterized by simple decoration patterns and a few animal-shaped adornos. The occupation of the Wageningen-1 mound stops before the beginning of the Late Hertenrits phase. Only in the Hertenrits site are both the early and late phases present.

Late Hertenrits can be dated to ca. AD 1000 to 1250. Late Hertenrits is found in the topmost habitation level of the Hertenrits mound and at Prins Bernhard Polder, where only Late Hertenrits activities are documented. Late Hertenrits pottery has a wide range of shapes and decorated objects. In addition to a variety of adornos representing animals (Figure 17.8) there are clear representations of human beings, and even free-standing figurines, in fact, statuettes (Figure 17.9), which always depict women. This richly decorated material only occurs in the youngest, topmost layer of the Hertenrits mound. There is clearly a continuity as all decoration patterns of Early Hertenrits also occur in Late Hertenrits (Boomert 1980: 86). The rich decoration of the late pottery suggest a high level of skill and artistry. This elaborate pottery is found not only in the Hertenrits mound but also at the Prins Bernhard Polder site, situated to the west of the mounds.

About half of the pottery of Hertenrits, Prins Bernhard Polder and Wageningen-1 has a more or less light grey surface; the other half is orange-grey to orange. The surface is well-polished, but sometimes irregular. The cross-section is mostly grey. A number of complete or nearly complete pottery vessels have been found, varying from low bowls to taller shapes.

The Prins Bernhard Polder site is remarkable for its enormous quantity of high-quality artifacts: not only pottery, but also artifacts of bone, stone, and shell (Figures 17.10, 17.11). A special find is a spade of hardwood from deep below the groundwater level. It is complete except for the broken handle. Also a spade-like tool of turtle bone was found at Prins Bernhard Polder with its handle missing. It could have been used as a shovel if the handle was mounted lengthwise, or as a hoe if the handle was at a 90-degree angle.

The topmost layer of the Hertenrits mound and the Prins Bernhard Polder yielded not only the wooden shovel and beautiful unique pottery, but also stylized frogs of shell and rhyolite (Figure 17.11), shell pendants, and shell artifacts that might have been lip plugs (Figure 17.10) or ear plugs, axes and polishers. In spite of the spectacular artifacts from the site, there is no trace of terra preta, or midden. There are no raised fields nearby either. Rather, the spectacular finds (better quality, more decoration, special human representations) of the artifacts (Figures 17.8-17.11) occur in and near small, man-made hills that are different from any raised fields known from the coastal plain. All in all, the Prins Bernhard Polder site appears to have had a primarily ceremonial function, and was never a settlement.



Figure 17.8. Adornos of the Hertenrits Culture (Araquinoid Tradition). The maximum width of the top left specimen is 9.4 cm. (Aad Versteeg)

The thick peat layer below the archaeological site of Prins Bernhard Polder may be important for understanding this site. Peat is rare in this part of the coastal plain: it is found not only here but also under all the investigated mounds, as noted earlier. The Indians of the Hertenrits culture seem to have chosen the location deliberately. The Nickerie-2 site, situated on the banks of the Nickerie River, seems to be the only exception. Peat dates from Prins Bernhard Polder suggest that the activities there did not begin before AD 1000, that is, in Late Hertenrits times. The choice of settlement location of the Hertenrits culture sites in this part of the coastal plain seems to have been governed by a preference for peaty



Figure 17.9. Freestanding female figurines with a loose piece of pottery inside were rattles. They probably were used during ceremonies. Prins Bernhard Polder site, Hertenrits Culture. The left specimen is 13.5 cm high. (Aad Versteeg)



Figure 17.10. Lip plugs made of shell, Hertenrits Culture. The left specimen is 4.7 cm high. (Aad Versteeg)



Figure 17.11. Frogs. Left specimen is made of stone (rhyolite). The four other frogs are made of shell. The left specimen is 2.7 cm high. (Aad Versteeg)

subsoil. This kind of preference must certainly have been important in the case of what was probably a ceremonial center.

Besides pottery, much animal bone was found in the mounds: deer and caiman are most common, followed by manatee, catfish and crab. Bones of other animals are found in smaller quantities. Cassava was cultivated on the raised fields and minor quantities of other crops.

Human skeletal material has been found in four sites of the Hertenrits culture. Bones buried in urns were found in the Hertenrits mound. The urns had a lid, usually an inverted vessel on top of the urn with the bones. This implies that secondary burial was practiced, at least for specific individuals. Primary inhumation human skeletal remains were found in varying degrees of completeness. Tacoma (1963) studied this skeletal material and his measurements classify the skulls as very wide (brachycephalous). Dispersed human bone material was excavated at Wageningen-1, among which was the artificially deformed skull of a man who died between the ages of 40 and 70. His dental health was extremely bad at the end of his life.

The plants and trees that are currently growing on the mounds were also studied (Werkhoven and Versteeg 1980), showing that about 50% of all the species are considered “useful or usable” by modern peoples living in Suriname’s interior. In comparison, for the whole of Suriname, the percentage is only 15%. The best explanation for the high percentage of useful plants is that some species planted by the pre-Columbian population were able to survive and propagate after human occupation ceased. This conclusion fits with results of other studies of vegetation on archaeological sites: some of the plants and trees growing in a village at the time of its abandonment survived there for centuries (Versteeg 2003:38).

We do not have a clear date for the end of the Hertenrits culture. Indications of its presence continue up to ca. AD 1250, but altogether there are not that many dates for sites with a Late Hertenrits component. Therefore human occupation long after AD 1250 should not be ruled out. Colonial artifacts have never been found in any of the sites. If Hertenrits sites were still inhabited by AD 1499, they were probably abandoned soon after. It is also possible that these villages had been abandoned earlier, around AD 1250. From AD 1250 on there are indications that Indian groups from the mainland settled on the Caribbean islands; perhaps they included people from western Suriname.

THE ARAUQUINOIDS COLONIZE A LARGE PART OF COASTAL GUIANA

In the paragraphs above I argued that the frontiers of the Saladoid and Barrancoid Traditions extended just up to West Suriname: one Saladoid site in Wonotobo along the Corantijn River and three Barrancoid Mabaruma sites, the same Wonotobo site and the Buckleburg-1/-2 mounds. So far, material belonging to these traditions has never been found further east. The distribution of sites of the Arauquinoid Tradition extends further to the east.

The behavior of the Arauquinoid people is different from that of earlier populations. Within a few centuries after arrival in western Suriname, its frontier moves some 500–600 km to the east, up to Cayenne Island in modern French Guiana (Rostain 1994: 86–89). The Arauquinoid Tradition also seems more variable than the Saladoid and Barrancoid Traditions, appearing in several related styles, such as Early Hertenrits, Late Hertenrits, Kwatta, Barbakoeba and Thémire. Barrancoid pottery is limited to Mabaruma styles, manifesting a more uniform tradition. Even so, the Arauquinoid Tradition is clearly a cultural unit, as also argued elsewhere in this volume (Rostain writing about Guianas in Chapter 16 and Navarrete writing about Venezuela in Chapter 23).

THE PERUVIA SITE: A FRONTIER VILLAGE OF THE HERTENRITS CULTURE

In the eastern part of this area near the Coppename River (Figure 17.1), in the borderlands between Hertenrits and Kwatta territory is the Peruvia site, situated on a wide chenier near large clusters of raised fields. This site is not a mound. Still, it deserves to be discussed in relation to the mounds of the Hertenrits culture, because of its interaction with these sites.

The Peruvia site has a thick top layer of terra preta on the yellow sand of the chenier, marking long-standing human occupation. The color of Peruvia pottery is orange to greyish-brown. In this respect it deviates from the pottery of the Hertenrits sites which, on average, is more grey. Kwatta pottery is orange, ranging from light brownish-orange to bright orange. Peruvia fits somewhere in between these two groups.

The same is true for the decorations: the incisions and round indentations and the way they were applied to walls and rims are typical of Hertenrits. But the double rows of round impressions (Versteeg 1985: fig. 38a-c) are characteristic of Kwatta culture, as are the painted sherds and the simple faces on the inside of bowls (Versteeg 1985: fig. 40h). The remaining traits are characteristic of Hertenrits rather than of Kwatta, specifically of Early Hertenrits, which would fit in with the earliest date of ca. AD 650 for the Peruvia

site. The raised fields north and south of the village also link Peruvia to the other Hertenrits sites. Such fields have not been found up to now in Kwatta sites.

Peruvia is an Early Hertenrits site situated just inside Hertenrits territory. Peruvia pottery has strong Kwatta influences. It is a typical frontier village that received influences from both cultural centers: from Hertenrits in western Suriname and from the Kwatta Tingiholo site of central Suriname.

I have one more comment on the dating of Peruvia: one result suggests that human occupation continued into Late Hertenrits times, i.e., after AD 1000. It is possible that the site actually was inhabited that long, but there are no typically Late Hertenrits materials, comparable to that of the topmost layer at Hertenrits and Prins Bernhard Polder. The peripheral location of the settlement may account for this.

Among the other finds at the Peruvia site is a unique burial. The skeleton of a 9- to 10-year old boy was found distributed over two burial urns during the 1979 excavations. One of the urns had a complete inverted vessel as a lid. The urn without a lid contained the skull. The same urn also contained burnt bone of an individual who died between the ages of 40 and 70 years.

The Hertenrits culture seems to have had very complicated burial practices. The primary and secondary burials in the Hertenrits site and the burial that combines the primary and secondary processes (Boomert 1980:90) suggest the same.

The stone material at Peruvia is more varied than that at either Hertenrits or Wageningen-1. Much untouched or half-worked stone suggests that at Peruvia stone was either worked or traded in different stages of production. No natural stone outcrops are found in the coastal plain in which Peruvia is situated. All stone material is therefore imported from the interior. In this respect Peruvia is comparable to Kwatta Tingiholo in central Suriname (Versteeg 2003: 155–157). Or perhaps the stone was traded to Peruvia from Kwatta Tingiholo as a result of the close trade relationships between Kwatta and Peruvia.

CONCLUSION

Millions of tons of deposits from the Amazon River built up coastal Suriname, resulting in large areas of flat, swampy land. Inhabitants constructed residential mounds in this coastal zone because it was attractive for raised field farming but had no naturally elevated locations for settlement. High earthen bodies were constructed in fresh water swamps. The Barrancoid Mabaruma people were the first to build mounds, around AD 300. Later, from AD 700 AD, Arauquinoid Hertenrits people built clusters of mounds nearby. Around AD 1000 we witness two things: a quick and successful expansion of the Arauquinoids to the east, up to Cayenne, and Hertenrits sites that show richly decorated artifacts, high-status items and satellite sites around the Hertenrits central mound, such as the Prins Bernhard Polder and the Peruvia sites. From AD 1000–1250 the Hertenrits mound is one of the centers of successful activities of the Arauquinoids (see Rostain 1994 and Versteeg 2003 for more discussion of Arauquinoid cultures).

REFERENCES

- Augustinus, Pieter G.E.F., 1978, *The Changing Shoreline of Surinam*. Publications of the Foundation for Scientific Research in the Caribbean Region, 95. Utrecht.
- , 1983, Coastal changes in Suriname since 1948. *Proceedings Furoris Congress*: 329–338. Paramaribo.

- _____, 1994, Ontwikkelingen in de kust- en kustvlaktegenese van Suriname. In *Recente geologische en mijnbouwkundige ontwikkelingen in Suriname*, edited by L. J. Van der Steen, pp. 3–22. Publications of the Foundation for Scientific Research in the Caribbean, Amsterdam.
- Boomert, Arie, 1980, Hertenrits: an Arauquinoid complex in northwest Suriname (part 1). *Journal of the Walter Roth Museum of Archaeology and Anthropology* 3 (2): 68–105.
- Laeyendecker-Roosenburg, Dosia M., 1964, A palynological investigation of some archaeologically interesting sections in Northwest Surinam. *Leidse Geologische Mededelingen* 38: 31–36.
- Roeleveld, Wim and Anton J. van Loon, 1979, The Holocene development of the Young Coastal Plain of Suriname. *Geologie en Mijnbouw* 58: 21–28.
- Roosevelt, Anna Curtenius, 1987, Chiefdoms in the Amazon and Orinoco. In *Chiefdoms in the Americas*, edited by Robert D. Drennan and Carlos A. Uribe, pp 153–185. University Press of America, Lanham.
- Rostain, Stéphen, 1994, The French Guiana coast: a key area in prehistory between the Orinoco and Amazon rivers. In *Between St. Eustatius and the Guianas*, edited by Aad H. Versteeg, pp. 53–100. Publications of the St. Eustatius Historical Foundation, 3. St. Eustatius.
- Tacoma, Jouke, 1963, *American Indians from Suriname*. Utrecht.
- Versteeg, Aad H., 1985, The prehistory of the Young Coastal Plain of west Suriname. *Berichten Rijksdienst Oudheidkundig Bodemonderzoek* 35:653–750.
- _____, and Frans C. Bubberman, 1992, Suriname before Columbus. *Mededelingen Surinaams Museum* 49a: 1–64.
- _____, 2003, *Suriname before Columbus*. Libri Musei Surinamensis 1. Stichting Surinaams Museum, Paramaribo.
- Werkhoven Marga C. M. and Aad H. Versteeg, 1980, The vegetation of four mounds in the coastal plain of Suriname. *Mededelingen Surinaams Museum* 32: 8–37.
- Wong, Theo E., 1989, *Revision of the Stratigraphy of the Coastal Plain of Suriname*. Publications of the Foundation for Scientific Research in the Caribbean Region, 125. Amsterdam.

Sambaqui (Shell Mound) Societies of Coastal Brazil

MARIA DULCE GASPAR, PAULO DEBLASIS,
SUZANNE K. FISH, AND PAUL R. FISH

INTRODUCTION

Sambaquis (the Brazilian term for shell mounds, derived from the Tupi language) are widely distributed along the shoreline of Brazil and were noted in European accounts as early as the sixteenth century. They typically occur in highly productive bay and lagoon ecotones where the mingling of salt and fresh waters supports mangrove vegetation and abundant shellfish, fish, and aquatic birds. More than one thousand sambaqui locations are recorded in Brazil's national register of archaeological sites [Note 1], but represent a fraction of the original number because colonial through modern settlements coincide with these favorable environments. Although sambaquis are of variable scale overall, massive shell mounds are characteristic of Brazil's southern coast (Figure 18.1).

The term "sambaqui" is applied to cultural deposits of varying size and stratigraphy in which shell is a major constituent, undoubtedly encompassing accumulations with a range of functions and origins. Proportions of soil, sand, shell [Note 2], and the kinds of cultural inclusions and features in sambaquis also are variable. Small sambaquis often consist of shell layers over sandy substrates or sequences of shell and sand layers, with or without signs of burning or significant numbers of artifacts. Larger shell mounds typically have horizontally and vertically complex stratigraphy, including alternating sequences of shell deposits, narrower and darker layers of charcoal and burned bone that mark occupation surfaces, and clusters of burials, hearths, and postholes descending from these surfaces.

Food refuse is present in sambaquis, along with a set of several feature types that are commonplace in residential occupations. Recognizable dwellings have not been encountered, however, nor do arrangements of features and distributions of artifacts indicate sustained domestic activity, with very few exceptions (e.g., around lakes in the state of Rio de Janeiro; Barbosa et al. 1994; L. Kneip 1992). In some cases, small sambaquis with

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

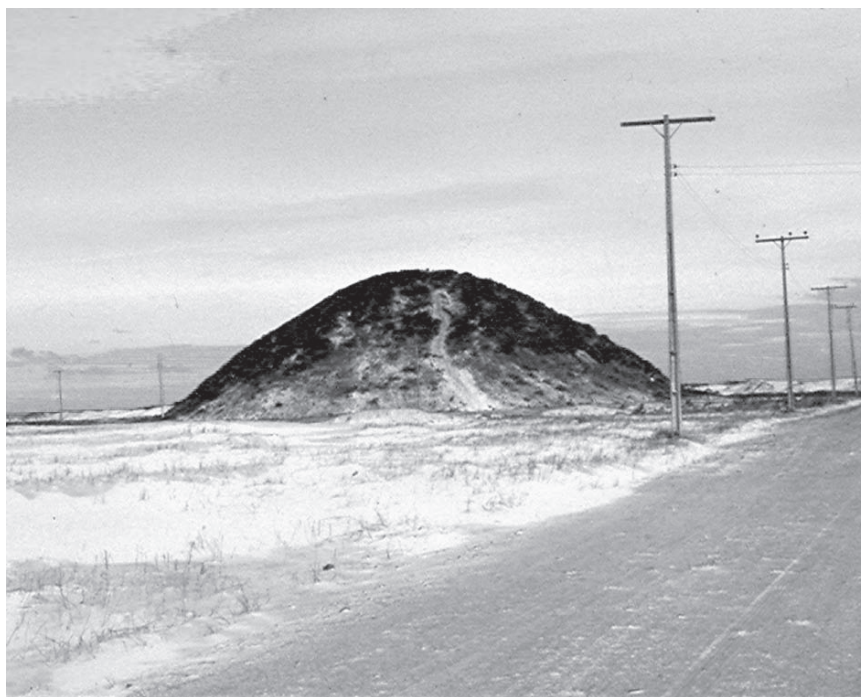


Figure 18.1. Sambaqui da Figueirinha, Santa Catarina. (Maria Dulce Gaspar)

less complex stratigraphy and minimal features or artifacts may represent campsites or processing stations. Most others serve mortuary functions, particularly the massive ones with complex stratigraphy. These rise tens of meters (maximum height today, after historic mining of shell, is approximately 50m) and cover hundreds of square meters. They are monumental in their scale and visual obtrusiveness in flat coastal settings and are noteworthy for pervasive burials. It is clear that sambaquis do not represent ordinary habitation, but rather are specialized elements of settlement systems in which very little is known about the other kinds of sites. The lack of a well defined settlement context that includes habitation sites reflects the very limited amount of survey in damp and heavily vegetated coastal zones, combined with the difficulty of finding and identifying contemporary site types that are not similarly marked by heaped shell, have no ceramics, little diagnostic chipped or ground stone, non-durable shell and bone tools, and perishable structures.

SAMBAQUIS IN SPACE AND TIME

The earliest dates of 9200 BP for sambaquis are inland along the Ribeira de Iguape where small mounds of edible land snails (*Megalobulimus* sp.), rather than bivalves, have stratigraphic sequences resembling those of coastal locations (Figuti et al. 2004) and already held burials (Neves et al. 2005). These initial riverine instances yield evidence for coastal contact, probably with populations at coexisting coastal sambaquis now lost to sea level changes and other geological processes; a sambaqui at the coastal end of the same river

basin dates to 8000 BP (Calippo 2004). Although intervening ages are well documented, the bulk of radiocarbon determinations on shell mounds are concentrated between approximately 4000 BP and 2000 BP.

Sambaquis frequently terminate in capping deposits of dark soil that are structurally similar to previous shell strata and also contain burials, but contrast in having only minor shell inclusions. Ceramics often occur in uppermost levels, prior to a generally synchronous cessation of sambaqui use everywhere. About the same time, villages and camp sites of Tupi-Guarani and Taquara/Itararé ceramic traditions appeared, sometimes exhibiting bone and lithic technologies suggestive of continuities or interactions. When European settlers arrived, Tupi and Guarani coastal groups possessed a very efficient fishing technology that likely incorporated a heritage from sambaqui predecessors.

Because shells of mostly edible species, fish bone, and other faunal remains are prominent constituents, sambaquis have been strongly associated with hunting and gathering economies dependent on mollusk collection and fishing. The absence of pottery in most cases, or its restriction to uppermost layers, strengthens the impression that sambaquis are not components of primarily agricultural settlement systems. Grinding stones are seldom formally shaped. Other common items in artifact assemblages are consistent with a marine and lagoon orientation. Largely expedient chipped stone, ground stone objects ranging from informal pebble and cobble forms to well-shaped and polished axes, and shell and bone implements (such as hooks, points, and needles) are typical (e.g., Bryan 1993). Sculpted and polished stone items that are technologically sophisticated include decorated plates, vessels, and ornaments (Prous 1977, 1992). The most distinctive of these polished stone items, however, are fish, bird, and mammal effigies termed zooliths, and geometric shapes. These are always rare, but occur throughout much of the area containing sambaquis.

Sambaquis have been most intensively studied along the coast from the states of Rio de Janeiro to Santa Catarina, including Paraná and São Paulo (e.g., Schmitz 1987; Prous 1992; Gaspar 1998, 2000; Lima and Mazz 2000). Shell mounds further north, although numerous and occasionally described (e.g., Calderón 1964; Simões and Correa 1971; Roosevelt et al. 1991), are more poorly known. To the south, in the state of Rio Grande do Sul and into Uruguay where it is too cold for mangrove vegetation, shell mounds become smaller and infrequent, and are then replaced by earthen mounds (or *cerritos*) that exhibit significant parallels. The huge sambaquis of Santa Catarina are among the best preserved and reported (e.g., Beck 1972; Prous and Piazza 1977; Rohr 1984; Wiener 1876). Researchers have also concentrated work in the state of Rio de Janeiro. These two areas have produced the majority of detailed archaeological information. Because the authors have collaborated in a long-term project in Santa Catarina, findings from this region and this work are frequently cited in the following discussion.

TRENDS IN SAMBAQUI RESEARCH

Sambaquis have been the subject of archaeological inquiry since the late nineteenth century. Only much later did archaeologists begin to address the cultural and organizational characteristics of the associated societies. A strongly empirical orientation focused early attention on aspects such as artifact technology, composition of faunal assemblages, and the physical traits of skeletal populations. Nevertheless, important reports appeared regarding distribution, composition, subsistence, human remains, and even relationships to Quaternary coastal evolution (e.g., Loeffgren 1893; Krone 1905, 1914). Until the late

1940s, a central question was whether the sambaquis were natural shell deposits (which also occur in Brazilian coastal areas) or cultural phenomena.

Advocates of the “natural” position initiated a legacy of geological approaches that examine the positioning and chronology of sambaquis as references for the study of coastal landscape processes. Such studies have generated models that explore the distribution and positioning of sambaquis in relation to geological phenomena and sea level fluctuations (e.g., Caruso 1995; Giannini 1993; Martin et al. 1986). Advocates of the cultural origin of sambaquis predominantly assumed them to be the unplanned accumulations of shellfish collectors during successive camp episodes. A small number of researchers, considering the repeated presence and frequent abundance of burials, suggested shell mounds were cemeteries, or even that they were built as monuments (e.g., Duarte 1968; Wiener 1876).

Systematic excavations and radiocarbon dating began in the 1950s with French and North American archaeologists (e.g., Bryan 1993; Emperaire 1955; Emperaire and Laming 1955; Hurt 1974; Hurt and Blasi 1960) and pioneering investigators from Brazil’s developing archaeological institutions (e.g., Castro Faria 1955; Fernandes 1955; Duarte 1968). Deeply impressed by the rapid destruction of sambaquis due to mining of shell for modern uses and urban expansion, these scholars promoted laws for the protection of the archaeological heritage, enacted in 1961.

In the early 1960s, a group of Brazilian archaeologists, with support from Betty Meggers and Clifford Evans of the Smithsonian Institution, launched the five-year Programa Nacional de Pesquisas Arqueológicas, a reconnaissance, mapping, and dating project throughout Brazil. This program generated models for regional archaeological interpretation and, with the French “paleoethnographic” approach (e.g., L. Kneip 1977), established mainstream methodological paradigms that are still influential today. A methodology that privileged surface collections and test pits on a regional scale was better suited to provide preliminary insights on inland Archaic and ceramic traditions than on the deeply stratified sambaquis of coastal zones. Despite recognition of a sambaqui tradition, cultural parameters remained poorly understood.

For many years, relatively early dates, scarcity of ceramics, and repetitive deposits dominated by shells prompted most archaeologists to describe sambaquis as a sequence of campsites. Nomadic shellfish gatherers, fishers, and hunters were thought to have occupied the same location over time because it offered a dry, secure setting with immediate access to aquatic resources. Grinding stones suggestive of plant processing, and the variety of bone tools pointing to an intensive fishing technology, were seldom taken into account, although the increase of bone tools in the upper layers of many sambaquis was interpreted as a late economic shift from shellfish collection towards intensified fishing strategies (e.g., Dias 1972; Mendonça de Souza 1981; Lima 1991, 1995).

Archaeologists now acknowledge the full ecological potential available to coastal societies that could allow them to intensify subsistence, experience population growth, and achieve higher levels of social complexity (e.g., Arnold 1996; Price and Brown 1985). In fact, the emergence of “complex hunter-gatherers” is often associated with these rich environments, such as on the Northwest Coast and in southeastern portions of the United States (e.g., Sassaman 2004). Recent zooarchaeological studies (Bandeira 1992; Figuti 1992, 1993; Figuti and Klökler 1996; Klökler 2001) reveal that from at least 5000 BP, sambaqui economies were based on intensive fishing rather than collection of low calorie shellfish, especially net fishing in bay and lagoon ecotones, complemented by gathering from mangrove areas. An oxygen isotopes analysis of skeletons from a Santa Catarina sambaqui indicates a diet based mainly on fish but without evidence for seasonality, reinforcing an

interpretation of substantial year-round catches (DeMasi 1999). Observations of traditional fishing communities that still occupy lagoon settings today point incisively to the intensive practice of communal net fishing in all seasons, in which families work together and share the yield³.

In the state of Rio de Janeiro, Scheel-Ybert (1998, 2000, 2001) has reported the presence of plant resources, most notably cará (*Dioscorea* sp.), an edible root. Together with wood charcoal identifications of tree species, these findings suggest the management of forests and preferred plants, and perhaps even garden horticulture (Tenório 1991). Significantly, in the earthen cerritos of Uruguay, Iriarte (2004) has documented cultivated plants as early as 4,000 years ago.

Bioanthropological studies on sambaqui skeletal populations beginning in the nineteenth century (Ladislao Netto 1882; Lacerda 1885) described a strong, robust biotype of short stature. Teeth show almost no caries, indicating a low carbohydrate intake, and arms show intense muscular stress, taken as evidence for rowing and canoeing. A recent paleopathological study (Storto et al. 1999) found signs of endemic diseases, indicative of sedentism and relatively dense populations.

Consideration of sambaquis within regional approaches of settlement analysis and efforts to understand their societal significance (e.g., Barreto 1988; Gaspar 1991) focused attention on the contemporaneity of mounds in the same region and the implications for interaction. Linkages among the social groups associated with massive sambaquis are revealed by patterns of intervisibility within regional landscapes and their status as landmarks from vantages on land, sea, and lagoon (Gaspar 1989). As issues of social complexity have come to the fore and excavations have amassed new data, perspectives on sambaqui cultures have changed from a singular emphasis on nomadic, highly mobile shell fish collectors (who eventually intensified fishing) to a recognition of denser, sedentary societies that evolved toward more complex patterns of social organization (DeBlasis et al. 1998; Lima and Mazz 2000; Gaspar 2000). The massive sambaquis, now frequently regarded as monuments impregnated with symbolic meaning, are viewed as the result of socially articulated effort involving mortuary ritual and a cult of ancestors (Fish et al. 2000; Gaspar 2000). Investigators discuss evidence for social inequality and territorial configurations (Storto et al. 1999; Lima and Mazz 2000; Gaspar 2000; Fish et al. 2000) as well as trans-regional ideological systems (DeBlasis 2005).

The prolonged and widespread sharing of fundamental cultural patterns exhibited in sambaquis indicates intense, sustained interaction among the corresponding communities. Major shifts in cultural trajectories are not apparent, and there is no appreciable evidence for interaction and exchange with inland hunters and gatherers of other cultural traditions (for rare exceptions, see Miller 1969 and Figuti et al. 2004), or with subsequent ceramic people, until after 2000 BP. Regional differences, to the extent that they exist, have not been systematically defined. In view of this notable economic and social stability and the absence of competing developments in coastal environments, Gaspar (1994) has proposed that sambaquis are the product of homogenous societies, probably with a shared ethnic identity, that were differentiated from other hunter-gatherer traditions of the adjoining highlands from middle to late Holocene times.

Both pervasive burials and extensive food remains characterize almost all investigated sambaquis throughout Brazil's central and southern coast (Gaspar 1998). Even if some were not domains reserved exclusively for the dead, the importance of shell mounds as burial places persisted for millennia. The study of sambaquis as mortuary structures is recent and has opened new avenues for archaeological inquiry. Just prior to

the implementation of this perspective, investigators demonstrated that some sambaquis were intentionally built, overturning the traditional assumption that even the massive ones originated with successive camping, but not yet addressing the decisive role of mortuary ritual in building processes (Afonso and DeBlasis 1994; DeBlasis and Afonso 1999; DeBlasis and Gaspar 1992). The towering sambaquis of the southern coasts now have been identified and examined as mortuary monuments within regional settlement systems in the course of a long-term research project in southern Santa Catarina (DeBlasis et al. 1998, 2001; Fish et al. 2000).

MORTUARY MONUMENTS, TERRITORIES, AND DEMOGRAPHY

In a regional sector bounded by the modern towns of Laguna, Tubarão, and Jaguaruna, early reconnaissance by Rohr (1984) and more recent systematic inventory have outlined a settlement system encompassing 420 km², over 60 sambaquis, and 96 radiocarbon dates between 4500 and 1500 BP (DeBlasis et al. 2004; Eastoe et al. 2002; Fish et al. 2000) (Figure 18.2). An innovative related study by A. Kneip (2004) shows that sambaqui locations as much as 10 km inland today formerly had access to open bays, before the slow, regular lowering of sea level by about 2 m over the last five thousand years. The previous bay and barrier island ecosystems would have been even more favorable than the still very productive but now more fully enclosed lagoons. Clusters of massive shell mounds are associated with current principal lagoons. Initial mounds had appeared in most of these locales by approximately 5000 BP; dates from later mounds end a few centuries after 2000 BP. An intensively dated mound (Jaboticabeira II) in one cluster was built continuously for almost eight hundred years (Fish et al. 2000). Another (Carnaíba I) has dates suggesting relatively continuous construction for one thousand years or more (Hurt 1974). In several other cases, a few, more isolated dates from the same mound suggest an even longer time-span, but it is unclear whether the building process was continuous or episodic. In any case, huge sambaquis containing burials persisted in the same locales for more than 3,500 years. The ongoing construction of monumental mounds implies a social system that not only was relatively sedentary but that also continued to imprint its enduring cultural perspective on coastal landscapes.

Excavations at Jaboticabeira II in the vicinity of the Camacho lagoon (Figure 18.3) clarify and add critical details to the results of previous research on monumental sambaquis and their mortuary contents in this region and elsewhere (Fish et al. 2000; DeBlasis 2005). A mid-sized mound among its neighbors, Jaboticabeira II is over 8 m high, covers 90,000 m², and has a volume of approximately 320,000 m³. As with most sambaquis of such size, it was heavily mined for modern construction materials prior to legal protection, leaving behind cavities with near-vertical walls throughout the mound. Long profiles documenting about 250 m² of these cuts reveal the repetition of many smaller, internally mounded sequences beginning about 2500 BP. Thicker shell layers are interspersed with thin, dark layers rich in charcoal, burned fish bone, and other organic materials. Careful sampling to test the entire mound attests that the formation processes involved in these sequences are cumulatively responsible for the construction of the mound as a whole.

With few exceptions, burials are grouped into discrete funerary areas that recur throughout the height and breadth of Jaboticabeira II, originating on the thin, dark layers. These funerary areas are interpreted as the designated burial locations for specific affinity groups, whose membership was based on kinship, territorial affiliation, or other social

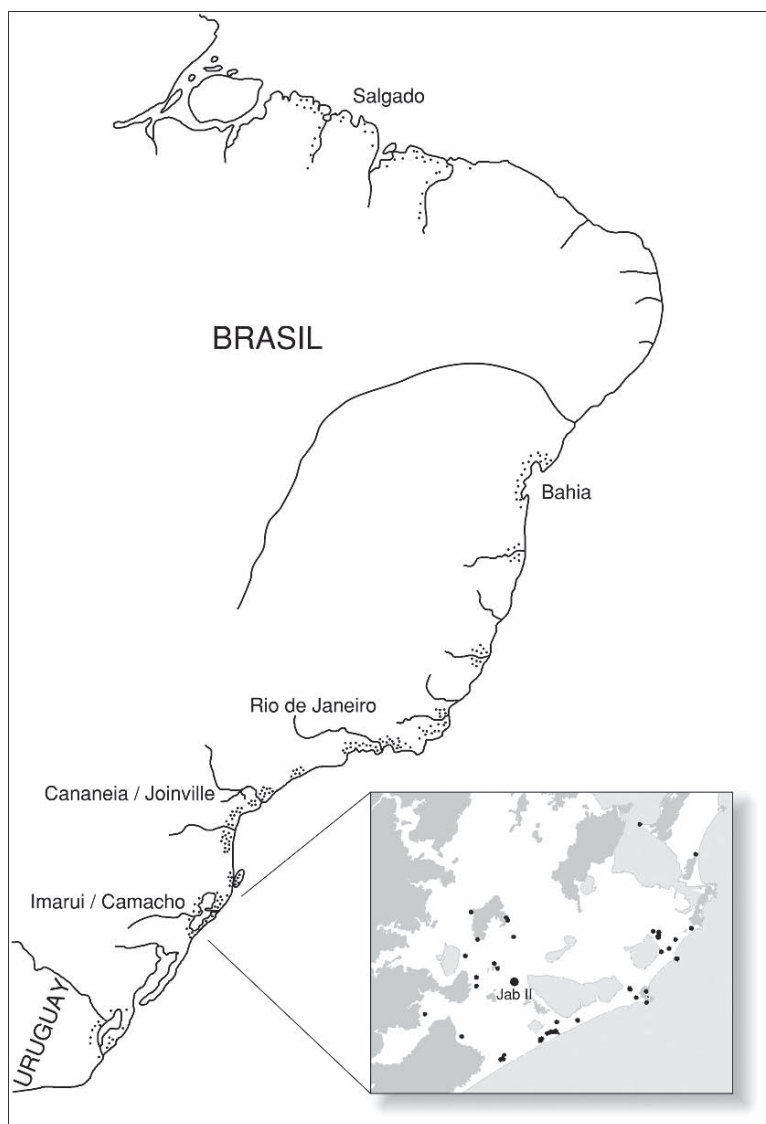


Figure 18.2. Location of sambaquis along the coast of Brazil. Enlargement of the Camacho Study Area in Santa Catarina. Note the association of sambaquis with lagoons. (Maria Dulce Gaspar)

principles. A horizontal excavation of 36 m² within a funerary area confirmed that the corresponding dark layers are successive occupation surfaces, sometimes with localized shell pavements and always with numerous postholes in the vicinity of the burials. Posts encircled some burial pits and similarly demarcated whole funerary areas. Additional posts may have supported miniature structures over graves (as in ethnographic practices), suspended offerings, marked the graves, or served still other purposes.

Bodies usually were interred in shallow pits closely accommodating the tightly flexed remains and offerings, but there are rare instances of extended burials. Multiple burials,



Figure 18.3. Excavations at Jaboticabeira II, Santa Catarina. The horizontal exposure is 36 m². (Maria Dulce Gaspar)

frequently a combination of adult and child, were common. Secondary burials were the rule, with bodies apparently prepared by desiccation and wrapping elsewhere before transport to the site. Because of this prior preparation, all those who died over some interval may have been transported at a prescribed time and interred by the affinity group with coordinated and communal ceremony. Treatments of the bodies were not consistently performed but included covering with red pigment, removal of few specific bones, and the addition of a few bones from other individuals. Typical artifact offerings, when present, were utilitarian items of shell, bone, and stone; shell and bone jewelry; small sets of rounded pebbles; and sometimes, large stone objects placed near the head.

During the interment ceremonies, and also during later visits to the grave, hearths surrounding and overlying the burial pits were lit and large quantities of food were consumed. The debris of fires and feasting is responsible for the dark color and organic composition of the occupation layers in funerary areas. Fish species are predominant among food refuse, but land and sea mammals and birds (for example, armadillo, tapir, monkey, whale, dolphin, penguin, duck) also occur, often as intentional placements. Complete fish and other intact faunal remains on occupation surfaces around graves and in graves suggest food offerings (Klökler 2001). Although fish bone is abundant across the surfaces and in grave fill, the highest concentrations usually occur immediately above the burials, conforming to expectations for mortuary feasts.

After some specified period, an affinity group ceased to add burials to its funerary area and it was then “closed” and covered by heaped shell. The appreciable quantities of shell mounded over occupation surfaces required procurement elsewhere and transport to the site. Ensuing funerary areas were established on subsequent surfaces atop previous shell

deposits in an extended process of both horizontal and vertical accretion. The ritual program of burial, feasting, and mounding of shell over a former funerary area was re-enacted over centuries, incrementally giving rise to the ultimate huge volume and monumental appearance of the sambaqui (Fish et al. 2000).

The western part of Jaboticabeira II is capped by up to 2.5 m of “black earth” deposits that cover many other sambaquis in the same manner. In this dark earthen cap, the same general stratigraphic structure as before was maintained, but shell is a minor and localized component; burned fish bone and charcoal are abundant. Both lithic and bone artifacts appear to be more common than in the lower shell layers, although they do not occur in configurations denoting activity areas. Burials continued and are even more concentrated. This final dark earthen phase dates approximately between 2000 and 1700 BP, both here and at another sambaqui in a neighboring cluster. Because of the continuity in mortuary function, researchers consider the whole of Jaboticabeira II to be a long-standing (about 800 years, from 2500 to 1700 BP) communal funerary structure or cemetery (Fish et al. 2000).

The monumental sambaquis enclose impressive numbers of bodies. Preliminary estimates extrapolated from the large profile sample at Jaboticabeira II conservatively indicate around 0.137 burials per m³, for a total of nearly 43,000 people interred in this mound over 800 years (Fish et al. 2000). Burial rate estimates per m³ from three previously excavated sites with sufficient quantified information (Beck 1972; Castro Faria 1952; Mendonça de Souza 1995; Hurt 1974; Bryan 1993; see Fish et al. 2000 for this comparison) produce equally high or even higher burial totals. These demographic figures, even if rough estimates, are indicative of relatively sizable and stable populations in a delimited surrounding area rather than the traditionally presumed “bands of nomadic shellfish collectors.” As most of the huge sambaquis in the region appear to have served funerary purposes, a substantial overall population density is indicated. During the interval of active burial, each of these monumental sambaquis would have represented the cemetery for a prescribed hinterland territory (perhaps analogous to the named fishing communities today). The presence of multiple contemporary sambaquis in the same regional sector suggests territorial circumscription and related economic intensification, based on rich lagoon resources and some possible cultivation in later times.

The towering sambaquis built around the productive Camacho lagoon for almost 3,500 years bespeak conditions conducive to sedentism and population growth. GIS analysis of visibility among mounds based on height and positioning shows the lagoon as the center and probable focus of intense boat interactions, as well as a common space and collective provisioning territory (A. Kneip 2004). Net fishing techniques point to strong social interchanges among communities around the lagoon [Note 3].

THE END OF THE SAMBAQUI ERA

In the best-studied areas in Santa Catarina and Rio de Janeiro, mound building tended to intensify towards the end of pre-ceramic times, apparently due to population growth. By about 2000 BP, there was a noticeable decrease in the use of shell and a switch to dark earth in final building stages. Cultural transitions correspond to this change in construction material. After the seventeenth century BP, monumental mound building processes ceased. Cemetery sites appeared with low earthen mounds over the graves. Both in the final earthen layers of sambaquis and these sites with small earthen mounds, ceramics are frequently present, usually in very small amounts (Rohr 1984; Schmitz et al. 1993, 1996; Fish et al. 2000;

for an exceptional site that extends significantly later in time and has abundant pottery in upper layers, see Bryan 1993).

Ecological transitions likewise are evident at the end of the sambaqui era. According to the curve for sea level changes in southern Santa Catarina (A. Kneip 2004; Angulo et al. 2005), the enclosure of open bays proceeded, involving the reduction of mangrove vegetation, and shellfish, and marine fish and mammals in the later lagoons. An increase in typical lagoon fish species in the upper layers of Jaboticabeira II (Klökler 2001) is a likely correlation. In combination with cultural change, the decreased use of shells for mound building may be related to decreased availability, particularly of berbigão. Also about 2,000 years ago, cultural change accelerated across central and eastern South America. Archaeological evidence throughout Brazil points to the expansion of agricultural societies and the emergence of complex systems of social organization, usually termed chiefdoms, especially along the Amazon River axis and its peripheries. Agriculturalists had arrived in central Brazil and on the southern coast by that time, and were undoubtedly involved in the disappearance of sambaqui traditions, although contact and assimilation varied across this very large area; in fact, northern sambaqui societies of the Salgado coast experienced this contact and transition by the fifth millennium BP (Simões and Correa 1971).

In the state of Rio de Janeiro, a long contact period with Ge-speaking and other external groups (archaeologically indicated by Una ceramics) appears to have generated transitional sites (Cordeiro 2004). On the southern coast, the newly established cemetery sites with low earthen mounds have Itararé/Taquara ceramics attributed to southern Ge-speaking groups (Rohr 1984; Bryan 1993). Inhabitants of these transitional sites no longer constructed monuments and followed different funerary rituals, but the technological and typological characteristics of their lithic and bone artifacts remained mostly unchanged from sambaqui predecessors, as did their intensive exploitation of aquatic resources. Although evidence is not yet strong for cultivation during the sambaqui era, dental evidence and the presence of ceramics convince most authors that these transitional sites were fully agricultural.

Tupi-speaking tribes also challenged long-lived sambaqui cultural domains on the southern coast at this time. Historical linguistics indicates that a Tupi diaspora (archaeologically indicated by diagnostic polychrome pottery) originated in Amazonia, although Brochado's (1984) comprehensive archaeological model for such a diaspora has not yet been confirmed by consistent evidence. It is likely that Tupian newcomers forcefully absorbed former sambaqui territories, as their villages and campsites never co-occur with the terminal construction phases of shell mounds or culturally transitional sites. Ritually sanctioned aggression, including warfare and ceremonial cannibalism, was the basis of Tupi political power (Silva et al. 2004: 11) among widespread post-contact groups. Apparently at a very fast pace, they achieved technological and demographic superiority, becoming the dominant occupants of the coastal zones (see Chapter 33 in this volume). Ethnographically described as superb fishers, it is very likely that they incorporated the remarkable fishing technology that had supported sambaqui societies.

CONCLUSION: FROM SAMBAQUIS TO SAMBAQUI SOCIETIES

What we know about the people who constructed sambaquis is almost wholly derived from these specialized sites linked with burial. The shell mounds provide direct information on technology and subsistence but also offer bases for reconstructing the builders' societies.

The mortuary program that resulted in mound building must have played a decisive role in societal structure and dynamics. The nature of feasting has great potential for disclosing cultural characteristics and social relationships (Dietler and Hayden 2001). Furthermore, mortuary observances are privileged arenas for displaying political or prestige power and negotiating or reinforcing solidarity and cooperation. The prolific consumption and discard of food around individual burials and throughout a funerary area suggests that the affinity group interring their dead invited the participation of a larger social network in mortuary ceremonies. They expended surpluses to maintain and expand connections or to negotiate and regulate power and prestige, thus promoting interactions and integration of a broader regional scope.

Formalized systems of social inequality are not apparent in mortuary treatments. Funerary areas are collective and isolated burials are few. Distinctions that might relate to social categories or status are infrequent rather than regularly encountered, but include a painted clay covering placed over a body, shell deposited over an occasional individual grave as well as over whole funerary areas, and much greater than usual volumes of shell mounded over particular funerary areas. A few recorded instances of rare stone effigies as burial accompaniments are potentially a potent form of differentiation. The probable religious connotation of zooliths and their restriction to individual burials in a few sambaquis likely signifies the emergence of ritual power, exercised within the framework of ideology and territoriality underlying mortuary ritual and funerary landmarks.

Broadly shared similarities in sambaqui bone, shell, and lithic industries, as well as building processes have been interpreted as the outcome of interactions all along Brazil's coast, probably based on common linguistic and social grounds (Gaspar 1991, 1998). Evidence for another aspect of such a pan-regional network comes from the stylistic and ideological implications of zooliths and related stone objects. They are made in an elegant, schematic, and homogeneous style over a distance of around 2,000 km from the Cananéia/Iguape region southwards to Uruguay, always in association with coastal sambaquis or cerritos (Prous 1977).

The frequent precision in depicting recognizable species morphology (Figures 18.4, 18.5) could be described as "hyper-realistic," and is evocative of iconographic and symbolic meaning. Zooliths include effigies of land and sea species such as whales, dolphins, sharks, penguins, turtles, bats, felines, armadillos, eagles, other varied birds and fish and, very occasionally, humans. As representations of entities belonging simultaneously to the material and spiritual worlds, zooliths may represent ancestors, founders, mythical culture heroes, or even deities of a shared cosmology. In the context of other broadly shared sambaqui patterns, their standardized style is commensurate with the emergence of a pan-regional ideology and adds to the impression of a unique and unified cultural expression along the entire southern coast.

Ideological principles appear to have permeated sambaqui culture. Constantly reenacted in funerary rituals involving the offering and consumption of abundant food, these precepts would have been decisive in structuring sambaqui societies and in the development of economic and social complexity without the emergence of explicit mechanisms for rank and hierarchy. Where shell mound distributions have been mapped and initially dated, it is possible to detect territorial configurations among contemporary sambaquis. Spatial and demographic parameters not only would have promoted sedentism but also, given the long duration of regional occupations, the emergence of increasingly complex systems of communal production and social relationships.

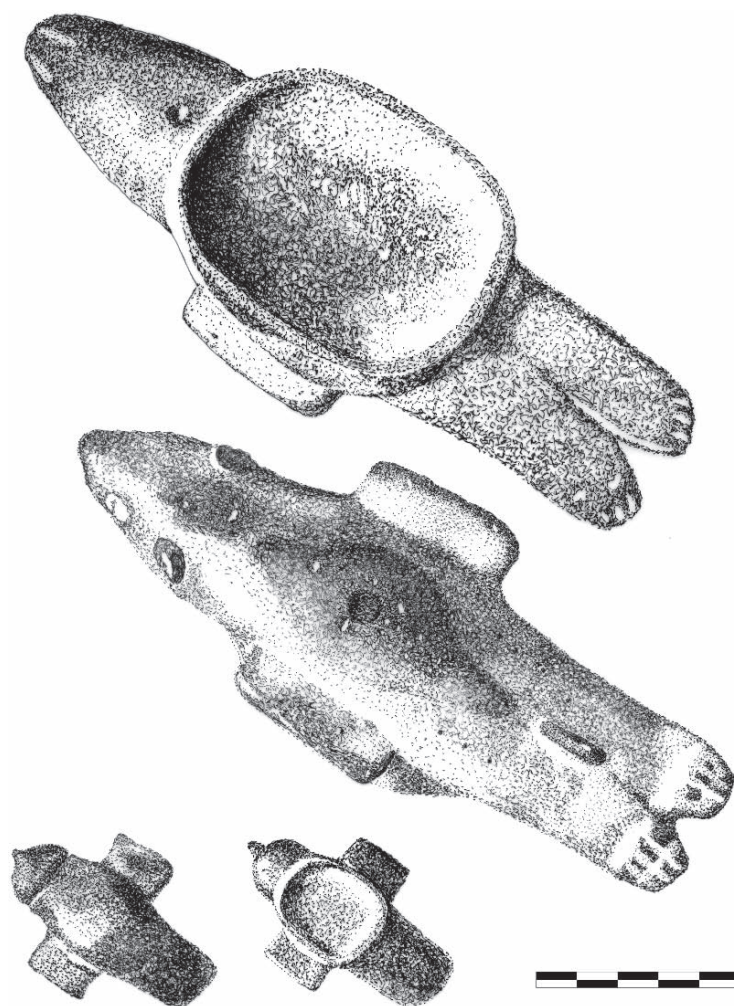


Figure 18.4. Zooliths from Santa Catarina. (Maria Dulce Gaspar)

Ceremonialism in funerary areas, involving the larger networks of affinity groups, also fits this interpretation.

Huge shell mounds were unequivocal landmarks, visible over long distances from land or water. The imposing mass of sambaquis imparted a similar obtrusive quality to the enclosed ancestors or founders, making them a constant presence in surrounding communities and reaffirming territorial rights grounded in these predecessors. Funerary monuments encoded a symbolic lexicon shared by fishing communities all along the Brazilian coast. Their construction embodied the ideological foundations of sambaqui societies that endured for millennia until the arrival of agriculturalists.



Figure 18.5. Zooliths from Santa Catarina. (Maria Dulce Gaspar)

NOTES

1. In Brazil archaeological sites and collections, even in cases of private land, are considered federal property, regulated and supervised by the National Historical and Artistic Heritage Institute (IPHAN), a federal agency for the management of archaeological and historical sites and museums.
2. By far the most common species in the sambaquis is berbigão (*Anomalocardia brasiliiana*, Gmelin 1791), and also *Ostrea* sp., *Lucina pectinata* (Gmelin 1791), *Brachinodontes* sp., *Thais haemastoma* (Linnaeus 1767), among others.
3. Gaspar conducted ethnoarchaeological studies of traditional fishing communities around the Camacho lagoon today. The lagoon is still very productive, readily providing residents with resources for subsistence and sale at the market. Fishing technologies and strategies also likely parallel those of the sambaqui era, involving small boats, cooperative groups, and distribution among participants. Another important finding of this study is the role of shellfish in the diet: although almost always available (and used), shellfish never constitute a staple but are usually consumed as a side dish or in a sauce accompaniment. Significantly, shells, particularly berbigão, are still valued as building material, especially for paving to enhance drainage and stability.

REFERENCES

- Afonso, Marisa C. and Paulo DeBlasis, 1994, Aspectos da formação de um grande sambaqui: alguns indicadores em Espinheiros II, Joinville, SC. *Revista do Museu de Arqueologia e Etnologia* 4: 21–30. Museu de Arqueologia e Etnologia da Universidade de São Paulo.
- Angulo, Rodolfo, Guilherme C. Lessa and Maria Cristina de Souza, in press, A critical review of mid- to late-Holocene sea level fluctuations on the eastern Brazilian coastline. *Quaternary Science Reviews*. Elsevier.
- Arnold, Jeanne E., 1996, The archaeology of complex hunter-gatherers. *Journal of Archaeological Method and Theory* 3 (2): 77–126.
- Bandeira, Dione da Rocha, 1992, Mudança de estratégia de subsistência. O sambaqui Enseada II – um estudo de caso. Dissertação de Mestrado. Universidade Federal de Santa Catarina, Florianópolis.
- Barbosa, Márcia, Maria Dulce Gaspar and Débora R. Barbosa, 1994, A organização espacial das estruturas habitacionais e distribuição dos artefatos no sítio Ilha da Boa Vista I, Cabo Frio, RJ. *Revista do Museu de Arqueologia e Etnologia* 4: 31–38. Museu de Arqueologia e Etnologia da Universidade de São Paulo.
- Beck, Anamaria, 1972, A variação do conteúdo cultural dos sambaquis, litoral de Santa Catarina. Tese de Doutorado. FFLCH da Universidade de São Paulo.
- Barreto, Christiana Nunes Galvão de Barros, 1988, A ocupação pré-colonial do vale do Ribeira do Iguape, SP: os sítios concheiros do médio curso. Dissertação de Mestrado. Faculdade de Filosofia, Letras e Ciências Humanas da Universidade de São Paulo.
- Brochado, Jose J., 1984, An Ecological Model of the Spread of Pottery and Agriculture into Eastern South America. Ph.D. dissertation. University of Illinois, Urbana.
- Bryan, Alan, 1993, The Sambaqui at Forte Marechal Luz, State of Santa Catarina, Brazil. In *Brazilian Studies*, edited by Alan L. Bryan and Ruth Gruhn. Center for the Study of the First Americans, Oregon State University, Corvallis.
- Calderón, Valentín, 1964, O Sambaqui de Pedra Oca. Instituto de Ciências Sociais, 2. Universidade da Bahia, Salvador.
- Calippo, Flávio R., 2004, Os sambaquis submersos de Cananéia: um estudo de caso de arqueologia subaquática. Dissertação de Mestrado. Museu de Arqueologia e Etnologia.
- Castro Faria, Luiz de, 1952, Le problème des sambaquis du Brésil: récentes excavations du gisement de Cabeçuda (Laguna, Santa Catarina). *XXX Congresso Internacional de Americanistas*, pp. 86–91. London.
- , 1955, A formulação do problema dos sambaquis. In *Atas do XXXI Congresso Internacional de Americanistas*, edited by H. Baldus, pp. 569–577. Ed. Anhembi, São Paulo.
- Cordeiro de Oliveira, Jeanne, 2004, A Primeira Face da Tradição - os Goitacá - da História e Identidade dos que não deitaram letras. Tese de Mestrado. Programa de Pós-Graduação e História Social Universidade Severino Sombra.
- DeBlasis, Paulo, 2005, Os sambaquis vistos através de um sambaqui. Tese de Livre-Docência. Faculdade de Filosofia, Letras e Ciências Humanas da Universidade de São Paulo.
- and Marisa C. Afonso, 2000, Indicadores de complexidade nos grandes sambaquis do litoral sul do Brasil: o caso de Espinheiros II, Joinville. In *Arqueologia de las Tierras Bajas*, edited by A. D. Coirolo and R. B. Boksar, pp. 341–352. Comisión Nacional de Arqueología/Ministerio de Educación y Cultura, Montevideo.
- , Sabine Eggers, Marta Lahr, Levy Figuti, Marisa C. Afonso and Maria Dulce Gaspar, 1998, Padrões de assentamento e formação de sambaquis em Santa Catarina. *Revista do Museu de Arqueologia e Etnologia* 8: 319–321.
- , Suzanne K. Fish, Maria Dulce Gaspar and Paul R. Fish, 1998, Some references for the discussion of complexity among the sambaqui moundbuilders from the southern shores of Brasil. *Revista de Arqueologia Americana* 15: 75–105. Instituto Panamericano de Geografía e Historia, Mexico.
- and Maria Dulce Gaspar, 2001, O sistema de assentamento dos sambaquis da região da lagoa do Camacho, Santa Catarina: uma primeira aproximação. In *Arqueologia do Brasil meridional*, edited by Arno A. Kern and Klaus Hilbert. PUCRS (publicação digital), Porto Alegre.
- DeMasi, Marco A. Nadal, 1999, Mobilidade de caçadores coletores pré-históricos na costa sulbrasileira. Ph.D. dissertation. Stanford University.
- Dias, Jr., Ondemar Ferreira, 1972, Síntese da pré-história do Rio de Janeiro, uma tentativa de periodização. *Revista de História* 1 (2): 75–83. Rio de Janeiro.
- Dietler, Michael and Brian Hayden (eds.), 2001, *Feasts. Archaeological and Ethnographic Perspectives on Food, Politics and Power*. Smithsonian Institution Press, Washington, D.C.
- Duarte, Paulo, 1968, *O Sambaqui visto através de alguns Sambaquis*. Instituto de Pré-História da Universidade de São Paulo.

- Eastoe, C.J., S. Fish, P. Fish, M. D. Gaspar and A. Long, 2002, Reservoir corrections for marine samples from the South Atlantic coast, Santa Catarina State, Brazil. *Radiocarbon* 44 (1): 145–148.
- Empereire, Joseph, 1955, Informations préliminaires sur les sambaquis du littoral de São Paulo. *Anais do XXXI Congresso Internacional de Americanistas*, edited by H. Baldus, 2: 603–612. Ed. Anhembi, São Paulo.
- _____, and Annette Laming, 1955, Les sambaquis de la côte meridionale de Brésil: compagnes de fouilles (1954–1956). *Journal de la Société de Américanistes* 45: 5–163. Paris.
- Fernandes, José Loureiro, 1955, Os sepultamentos no sambaqui de Matinhos. *Anais do XXXI Congresso Internacional de Americanistas*, edited by H. Baldus, 2: 579–602. Ed. Anhembi, São Paulo.
- Figuti, Levy, 1992, Les sambaquis COSIPA (4200 à 1200 ans BP): étude de la subsistance chez les peuples préhistoriques de pêcheur-ramasseurs de bivalves de la côte centrale de l'état de São Paulo. Dissertação de doutoramento. Institut de Paléontologie Humaine, Muséum National d'Histoire Naturelle de Paris.
- _____, 1993, O homem pré-histórico, o molusco e o sambaqui: considerações sobre a subsistência dos povos sambaquieiros. *Revista do Museu de Arqueologia e Etnologia* 3: 67–80. Museu de Arqueologia e Etnologia, Universidade de São Paulo.
- _____, and Daniela M. Klokler, 1996, Resultados preliminares dos vestígios zooarqueológicos do sambaqui Espinheiros II (Joinville, SC). *Revista do Museu de Arqueologia e Etnologia* 6: 169–188. Universidade de São Paulo.
- _____, et al., 2004, Investigações arqueológicas e geofísicas dos sambaquis fluviais do vale do Ribeira de Iguape, Estado de São Paulo. Relatório final à FAPESP.
- Fish, Suzanne K., Paulo DeBlasis, Maria Dulce Gaspar and Paul R. Fish, 2000, Eventos incrementais na construção de sambaquis, litoral sul do Estado de Santa Catarina. *Revista do Museu de Arqueologia e Etnologia* 10: 69–87.
- Gaspar, Maria Dulce, 1991, Aspectos da Organização de um Grupo de Pescadores, Coletores e Caçadores: Região Compreendida entre a Ilha Grande e o Delta do Paraíba do Sul, Estado do Rio de Janeiro. Tese de Doutorado, Faculdade de Filosofia, Letras e Ciências Humanas da Universidade de São Paulo.
- _____, 1994 Datações, construção de sambaqui e identidade social dos pescadores, coletores e caçadores. *Anais da VIII Reunião Científica da Sociedade de Arqueologia Brasileira* 1:377–398. EDIPUCRS, Porto Alegre.
- _____, 1998, Considerations of the sambaquis of the Brazilian coast. *Antiquity* 72: 592–615.
- _____, 2000, *Sambaquis. Arqueologia do litoral*. Jorge Zahar Editora, Rio de Janeiro.
- _____, and Paulo DeBlasis, 1992, Construção de sambaquis. *Anais da VI Reunião Científica da Sociedade de Arqueologia Brasileira* 2: 811–820. Rio de Janeiro.
- Giannini, Paulo César F., 1993, Sistemas deposicionais no Quaternário Costeiro entre Jaguaruna e Imituba, SC. Tese de Doutorado. Instituto de Geociências, Universidade de São Paulo.
- Hurt, Wesley R., 1974, The interrelationship between the natural environment and four sambaquis, coast of Santa Catarina, Brasil. *Occasional Papers and Monographs* 1. University of Indiana Museum, Bloomington.
- _____, and Oldemar Blasi, 1960, O sambaqui do Macedo, Paraná, Brasil. *Arqueologia* 2. Universidade Federal do Paraná, Curitiba.
- Iriarte, José, I. Holst, O. Marozzi, C. Listopad, E. Alonso, A. Rinderknecht, and J. Montana, 2004, Evidence for cultivar adoption and emerging complexity during the mid-Holocene in the La Plata basin. *Nature* 432: 614–617.
- Klökler, Daniela Magalhães, 2000, Construindo ou deixando um sambaqui? Análise de sedimentos de um sambaqui do litoral meridional brasileiro – processos formativos, região de Laguna, SC. Dissertação de Mestrado. Museu de Arqueologia e Etnologia, Universidade de São Paulo.
- Kneip, Andreas, 2004, O Pavo da Lagoa, Uso do SIG para Modelamento e Simulação na Área Arqueológica do Camacho. Tese de Doutorado, Faculdade de Filosofia, Universidade de São Paulo.
- Kneip, Lina Maria, 1977, Pescadores e coletores pré-históricos do litoral de Cabo Frio, RJ. Coleção Museu Paulista, série *Ensaio* 2: 145–169. Museu Paulista da Universidade de São Paulo.
- _____, 1992, As habitações 1 e 2 do sambaqui da Pontinha (Saqueama, RJ). *Anais da VI Reunião da Sociedade de Arqueologia Brasileira* 2: 730–737. Rio de Janeiro.
- Krone, Ricardo, 1905, Contribuição para a etnologia paulista. *Revista do Instituto Histórico e Geográfico de São Paulo* 7: 471–481. São Paulo.
- _____, 1914, Informações ethnographicas do vale do rio Ribeira de Iguape. *Exploração do rio Ribeira de Iguape*, pp. 23–34. Comissão Geográfica e Geológica (Typographia Brazil de Rothschild e Cia), São Paulo.
- Lacerda, J. B., 1885, O homem dos Sambaquis, contribuição para a antropologia brasileira. *Arquivos do Museu Nacional* 6: 175–204. Rio de Janeiro.

- Ladislao Netto, A., 1882, A origem dos Sambaquis. *Revista Experimental de Antropologia Brasileira* 1(1):1–37.
- Lima, Tania Andrade, 1991, Dos mariscos aos peixes: um estudo zooarqueológico de mudança de subsistência na pré-história do Rio de Janeiro. Tese de Doutorado. FFLCH, Universidade de São Paulo.
- , 1995, Ocupações pré-históricas em ilhas do Rio de Janeiro. *Arqueologia do Estado do Rio de Janeiro*, edited by M. C. Beltrão, pp. 95–104. Arquivo Público do Estado do Rio de Janeiro.
- and José M. L. Mazz, 2000, La emergencia de complejidad entre los cazadores recolectores de la costa atlántica meridional sudamericana. *Revista de Arqueologia Americana* 17, 18, 19: 129–175. Instituto Panamericano de Geografía e Historia, Mexico.
- Loefgren, A., 1893, Contribuições para a Archeologia Paulista: os Sambaquis de São Paulo. *Boletim Comissão Geográfica* 9: 1–91. SP, São Paulo.
- Martin, L., K. Suguio, and J. M. Flexor, 1986, Relative sea-level reconstruction during the last 7,000 years along the states of Paraná and Santa Catarina coastal plains: additional information derived from shellmiddens. *Quaternary of South America and Antarctic Peninsula*, edited by J. Rabassa, 4: 219–236. A.A. Balkema Publishers, Rotterdam.
- Mendonça de Souza, Alfredo A. C., 1981, *Pré-história fluminense*. Instituto Estadual de Patrimônio Cultural, Rio de Janeiro.
- Mendonça de Souza, Sheila M. F., 1995, Estresse, doença e adaptabilidade. Estudo comparativo de dois grupos pré-históricos em perspectiva biocultural. Tese de Doutorado. Escola Nacional de Saúde Pública/Fundação Oswaldo Cruz, Rio de Janeiro.
- Miller, Eurico T., 1969, Resultados preliminares das escavações no sítio pré-cerâmico RS-LN-1: Cerrito Dalpiaz (abrigo sob rocha). *Iheringia* 1: 45–112. Porto Alegre.
- Neves, Walter A. et al., 2005, A new early Holocene human skeleton from Brazil: implications for the settlement of the New World. *Journal of Human Evolution* 48:403–414.
- Price, T. D. and J. A. Brown (eds.), 1985, *Prehistoric Hunters-Gatherers: The Emergence of Cultural Complexity*. Academic Press, San Diego.
- Prous, André, 1977, Les sculptures zoomorphes du sud brésilien et de l'Uruguay. *Cahiers d'Archéologie d'Amérique du Sud* 5. École des Hautes Études en Sciences Sociales, Paris.
- , 1992, *Arqueologia Brasileira*. Universidade Federal de Brasília, Brasília.
- and Walter Piazza, 1977, Documents pour la préhistoire du Brésil méridional 2: l'état de Santa Catarina. *Cahiers d'Archéologie d'Amérique du Sud* 4. Ecole Haute Etudes en Sciences Sociales, Paris.
- Rohr, João Alfredo, 1984, Sítios arqueológicos de Santa Catarina. *Anais do Museu de Antropologia* 17: 77–168. Universidade Federal de Santa Catarina, Florianópolis.
- Roosevelt A. C., M. Imazio, S. Maranca, and R. Johnson, 1991, Eighth millennium pottery from a shell midden in the Brazilian Amazon. *Science* 254: 1621–1624.
- Sassaman, Kenneth, 2004, Complex hunters-gatherers in evolution and history: a North American perspective. *Journal of Archaeological Research* 12 (3): 227–280.
- Scheel-Ybert, Rita, 1998, Stabilité de l'écosystème sur le littoral sud-est du Brésil à l'Holocène Supérieur (5500–1400 ans BP). Les pêcheurs-cueilleurs-chasseurs et le milieu végétal: apports de l'anthracologie. Ph.D. dissertation. Université Montpellier-Sciences et Techniques du Languedoc.
- , 2000, Vegetation stability in the southeastern Brazilian coastal area from 5500 to 1400 14C yr BP deduced from charcoal analysis. *Review of Palaeobotany and Palynology* 110: 111–138.
- , 2001, Man and vegetation in southeastern Brazil during the late Holocene. *Journal of Archaeological Science* 28: 471–480.
- Schmitz, Pedro Ignacio, 1987, Prehistoric hunters and gatherers of Brazil. *Journal of World Prehistory* 1 (1): 53–126.
- , Ivone Verardi, Marco A. N. De Masi, Jairo H. Rogge and André L. Jacobus, 1993, Escavações arqueológicas do Pe. João Alfredo Rohr, S.J.: o sítio da Praia das Laranjeiras II, uma aldeia da tra-dição ceramista Itararé. *Pesquisas* (Antropologia) 49.
- , Ana Luiza V. Bitencourt and Ivone Verardi, 1996, Escavações arqueológicas do Pe. João Alfredo Rohr, S.J.: Laranjeiras I, Pântano do Sul, Cabeçudas e visão de conjunto dos sítios Tapera, Armação do Sul, Laranjeiras I e II, Pântano do Sul e Cabeçudas. *Pesquisas* (Antropologia) 53.
- Simões, M.F. and C.G. Correa, 1971, Pesquisas arqueológicas na região do Salgado (Pará) - a fase Areão do litoral de Mariparim. *Boletim do Museu Paraense Emílio Goeldi* 48: 1–30. Belém.
- Silva, F.A., E. G. Neves, P. DeBlasis, 2004, Beleza, rigor e dignidade: a cultura material Tupi no tempo e espaço. *Conjunto Cultural da Caixa* 1–31. Museu de Arqueologia e Etnologia –Universidade de São Paulo.

- Storto, Camila, Sabine Eggers, and Marta M. Lahr, 1999, Estudo preliminar das paleopatologias da população do sambaqui Jaboticabeira II, Jaguaruna, SC. *Revista do Museu de Arqueologia e Etnologia* 9: 61–71. Museu de Arqueologia e Etnologia, Universidade de São Paulo.
- Tenório, Maria Cristina, 1991, A Importância da Coleta de Vegetais no Advento da Agricultura. Dissertação de Mestrado. IFICS, Universidade Federal do Rio de Janeiro.
- Wiener, Carlos, 1876, Estudos sobre os sambaquis do sul do Brasil. *Arquivos do Museu Nacional* 1: 1–20. Rio de Janeiro.

The Nonagricultural Chiefdoms of Marajó Island

DENISE PAHL SCHAAN

INTRODUCTION

The study of the pre-Columbian occupation on Marajó Island dates back to the beginnings of archaeology as a field of inquiry in Brazil during the late nineteenth century. Elaborate funerary vessels, together with other exquisite pottery objects excavated from Marajoara cemetery mounds soon filled museums in Rio de Janeiro and Belém, while short notes and articles published in important journals attracted worldwide attention to the unexpected traits of “civilization” just discovered in the tropics. For decades to come, the origins of the people who built the 10- to 12 m-high earthen mounds and the meanings of the decorative designs on their pottery were a matter of speculation.

During the first half of the twentieth century, scientists, journalists, and non-professional archaeologists visited and excavated the mounds located in the seasonally inundated savannas, disturbing them so much that some were turned into piles of broken sherds mixed with the sediment that had been used for mound construction. A site distribution map published by Helen Palmatary in 1950 indicated the existence of some thirty mounds or mound groups dispersed over an area of roughly 20,000 km², leaving open the possibility that many more were yet to be found. Although funerary practices and mound features were described similarly for all locations and the ceramics were all taken as belonging to the same tradition, the excavators noticed both horizontal and vertical variation in the archaeological record; pottery sub-styles varied across the region and burial practices changed through time (Figure 19.1).

A change in research objectives and methodology took place with the arrival of Betty Meggers and Clifford Evans, who carried out the first regional survey on Marajó Island during the late 1940s, providing a comprehensive account of Marajoara culture and previous occupations. Based on ceramic attributes, Meggers and Evans (1957) defined five different archaeological phases for Marajó Island alone. With the exception of the

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

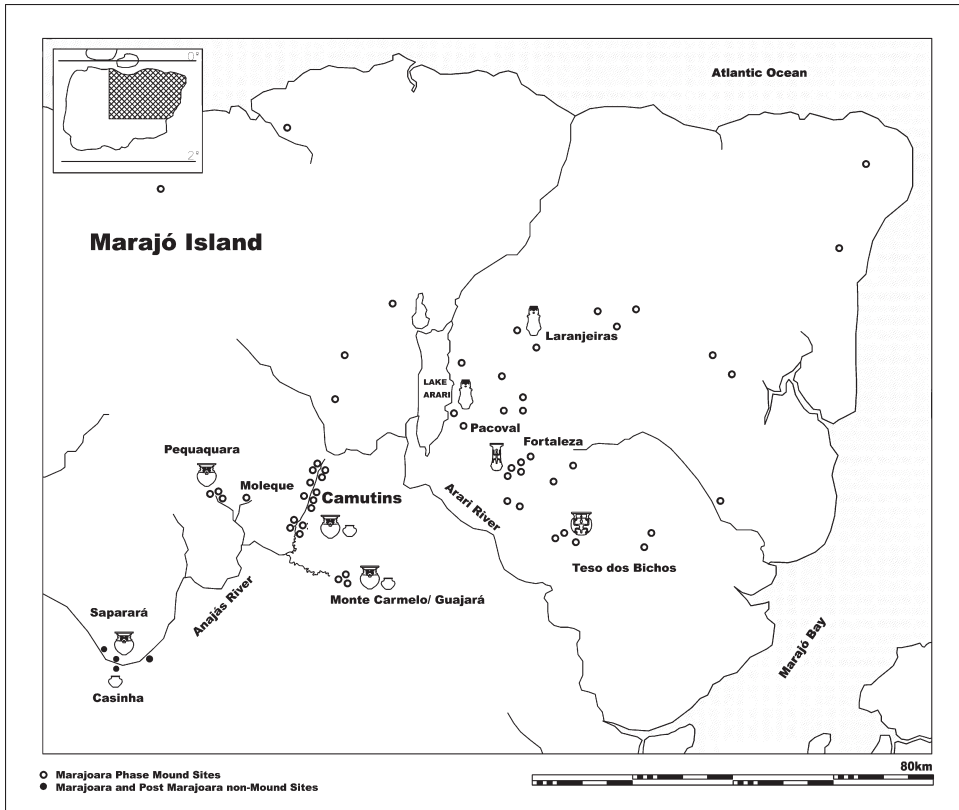


Figure 19.1. Distribution of Marajoara phase sites and pottery styles. (Denise Schaan)

Marajoara Phase, which is the fourth one, the others were called “tropical forest phases,” after Steward (1948).

Meggers and Evans demonstrated that for each cemetery mound there were several habitation mounds. Assuming that ecology would limit cultural evolution, Meggers and Evans suggested that Marajoara populations had migrated from western South America, where they found similar traits of social complexity (Meggers 1954; Meggers and Evans 1957: fig. 148). They explained that mound building, necessary for survival in a seasonally flooded environment, was a cultural trait brought with the settlers.

In the 1980s, Anna Roosevelt challenged Meggers and Evans’ interpretations through her investigation of two cemetery mounds, one located in the southeastern savannas, and another at the Anajás River headwaters (see Figure 19.1). She demonstrated that these mounds contained not only burials but also abundant domestic structures, indicating that they were used for habitation, feasting, and funerary rituals. Based on radiocarbon dates from her research and previous investigations (Meggers and Danon 1988; Simões and Figueiredo 1965), Roosevelt (1991) established that the Marajoara Phase lasted from AD 400 to 1350. Analyses of microfaunal and macrobotanical remains indicated that the diet was based on “annual cropping of seed crops, plant collection, and intensive seasonal fishing,” a diet “supplemented by tree fruits and seeds and occasional game” (Roosevelt 1991: 26, 405). Roosevelt (1999) also stated that Marajoara mounds were administratively

and economically independent, organized in a “heterarchical” system. This explanation of the complex traits exhibited by Marajoara society contrasted with the one offered by Betty Meggers.

Meggers maintained that the Marajoara people were intrusive; given the assumed ecological limitations, autochthonous development of social complexity would have been unlikely, if not impossible. Meggers (2001) explained the long duration of the Marajoara Phase by the ability of those populations to adapt to the local ecology, exploiting the region’s abundant wild resources, especially palm starch. Meggers’ migration hypothesis, however, implies a “cultural decline” through time, which has not been clearly demonstrated. In fact, while there are signs of a collapse in the regional political economy after AD 1100, expansion characterizes the period from AD 700 to 1000 (Schaan 2004). Moreover, there is a clear continuity in material culture between previous occupations by small scale, autonomous villages and the mound-building societies; there is also some evolution in settlement patterns through time, indicating that the advent of Marajoara culture was a result of a long-term process of cultural change.

Roosevelt (1999) argued that only a heterarchical mode of social organization could explain functional similarities between mounds, based on her understanding that all the known mounds were part of a single settlement system. The absence of political centralization, in her view, was due to a generalized subsistence economy, which lacked the necessary surplus to finance social complexity. Nevertheless, I see a problem of scale of analysis in Roosevelt’s view of the lack of a political center, since groups of ceremonial mounds associated with several smaller habitation mounds probably represent distinct settlement systems, some small chiefdoms of perhaps 1000 to 3000 inhabitants each.

Although Meggers and Roosevelt express different ideas on how to interpret the cultural development on Marajó Island, both explanations stem from the same assumption: that only intensive farming could support the emergence of regional, centralized, and hierarchical social systems. In the light of the restricted agricultural potential of the savanna soils and the absence of any evidence for intensive planting of seed crops, archaeological evidence for social stratification and in situ development of social complexity were overlooked by these researchers. However, a different picture emerges when the island’s particular ecology is considered, and the archaeological record is revisited.

MOVING EARTH TO MANAGE WATER

A panel written by Giovanni Gallo, in O Museu do Marajó, states: “On Marajó it is not the national president, nor the governor, that reigns. Here, there is an absolute and total dictatorship: water. It is water that offers the means of subsistence and impedes life; it conditions health, work, everything, without raising its voice in a disloyal, ruthless way. The seasons of the year have but one name: water, mud, drought. It is the dictatorship of water.”

Marajó Island, 49,606 km² in area, is the largest and easternmost island in an archipelago that lies at the mouth of the Amazon River. The enormous amount of nutrient-laden sediment carried by this powerful river and deposited on the western portion of Marajó and on several smaller islands (covered with terra firme forest, floodplain forest, and flooded forests) annually renews the soil, allowing relatively productive agriculture (Figure 19.2). In contrast, the eastern part of Marajó Island has a greatly reduced rate of sedimentation and does not benefit from the Amazon River sediments and their nutrients. The low savannas here are characterized by heavy clay and impermeable soils and are covered with grass and shrubs.

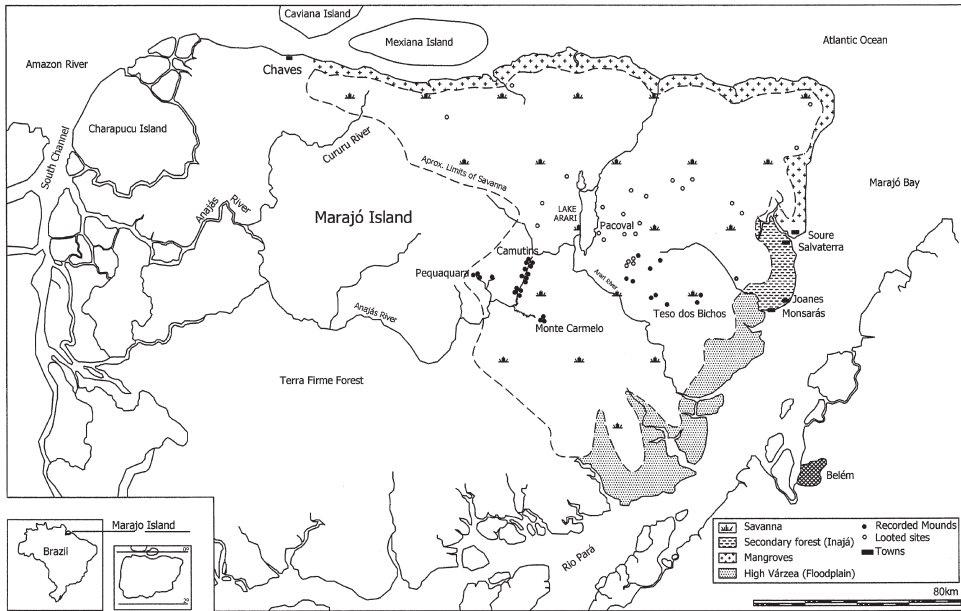


Figure 19.2. Vegetation patterns, sites, and towns on northeastern Marajó Island. (Denise Schaap)

The climate is characterized by a rainy season that runs from January until June. Virtually all of the annual precipitation (2,800–3,600 mm) falls during these six months making the rivers on Marajó Island seasonal. The drainage system is handicapped by the virtually flat topography and impermanent nature of most of the rivers. Moreover, several portions of the island lie below sea level. The savannas of Marajó can be compared (as Ackermann 1963 has suggested) to a flat plate with rising edges; it holds 1–2 m of rain water in 70% of its area for half of the year. The archaeological mounds are among the few patches of land that remain dry and visible in this shallow body of water.

The dry season is first felt in early July, but it is August that marks a transitional month when the waters have receded enough to expose most of the land, now covered with mud. From September to December, trade winds help to dry the soil and also carry away the rain clouds making precipitation virtually absent during these summer months. The heavy clay soils bake and crack under the equatorial sun, forming the so-called *terroadas* – an uneven, desiccated terrain covered with sparse grass. As the season advances, the grass turns brown and burns from natural and human induced fires.

The present economy is based on cattle and buffalo ranching, as well as the exploitation of natural resources such as timber and palms. Fishing is the second most important economic activity, especially on the savannas and along the eastern coast, where floating meadows and mangroves provide important food resources for fish populations (Smith 2002). Agricultural productivity is limited by nutrient-poor, impermeable soils, and an imperfect drainage system (OEA 1974; Sioli 1984; Sombroek 1966). Agriculture has been unsuccessful even in the area of transition between the savannas and forest (Murrieta, Dufour and Siqueira 1999) or along the coast, where it is limited to small-scale cultivation of pineapple and manioc.

Changes in the availability of resources, work schedules, and ease of movement caused by the seasonal floods and droughts have amazed both natural scientists and novelists dedicated to understanding and reporting on the native way of life on the largest island of the estuary. Archaeologists, however, have not paid enough attention to the immense limitations imposed by ecology to subsistence choices and settlement locations, and particularly the stimulus that ecology has provided to the development of landscape management practices during pre-Columbian times.

During the dry season, when small streams cease to flow and small lakes dry up, ranchers dam rivers and excavate ponds (the so-called rampas) to retain water for livestock. At the end of the rainy season, fishermen who live along the main rivers travel to the headwaters, where dams and enclosures (corrals) retain fish that spawn in the flooded savannas during the rainy season and head back to the main rivers when the waters recede. All over the savannas, large amounts of fish are trapped in deeper bodies of water and small impermanent streams. Fish are then mass harvested for weeks to come, providing plenty for local consumption and sale. The exceptional fish productivity of Marajó's savanna lakes and rivers has been reported since early colonial times, when the island supplied the recently founded city of Belém, located just across the bay, with tons of fish, turtles, turtle butter, and other products (Furtado, Lima, Albuquerque, and Castro 2002). Archaeologists have not considered the fact that the archaeological sites are located exactly in areas of high fish productivity, and that earthen mounds were only part of a wider range of earthworks designed to manage aquatic fauna.

It should be acknowledged, however, that previous research has occasionally referred to unusual landscape features, such as excavations next to the mounds, or to the fact that some mounds were partially built inside the adjacent river (Derby 1879; Roosevelt 1991: 31,168; Simões and Figueiredo 1964). It was not realized, however, that such excavations were ancient ponds, and that earthen structures connected to mounds were remains of pre-historic dams.

Visiting the upper Anajás River in the dry season, one will observe a huge shallow lake formed right in front of the Monte Carmelo and Guajará mounds. That lake provides abundant fish for regional consumption and sale thanks to a dam that is annually rebuilt adjacent to the mounds. Such practices, facilitated by local ecology, are very common elsewhere in the savannas. There is mounting evidence that they were first employed during pre-Columbian times.

THE CAMUTINS CHIEFDOM

The Camutins site is the largest known mound group, extending for about 10 km along the Igarapé dos Camutins, a right tributary of the upper Anajás River. A survey by Meggers and Evans (1957) located 20 mounds there in 1949 and Hilbert (1952) recorded another 17 mounds two years later.

The configuration of the mounds along the stream is consistent with the configuration of a single settlement, a politically autonomous polity whose influence extended over a large region analogous with the Anajás River basin (see Figure 19.1). I decided to study the Camutins site because I thought it would be a good model for beginning to understand one of the island's complex societies. The goal of the project was to investigate the spatial distribution of mounds, cultural features, earthworks, and artifacts related to domestic and ceremonial activities, in order to answer questions on mound function, the relation-

ship between mounds, access to resources, social hierarchies, craft specialization, and ceremonial life. To accomplish this goal, all of the mounds and other landscape features were identified and mapped. Artifact remains were recovered from the mound's surface. Major excavations were conducted on two of the largest mounds (M-1 and M-17), which I believed constituted the ceremonial and political center. The following sections of this chapter offer a picture of the Camutins chiefdom that emerged from this four-year project.

A Hierarchical Settlement System

The study along the Camutins River started by mapping the mounds and other landscape features that were missed in early research conducted during the flood season. Surveys carried out in different months of the year (March, July, September, November) were critical in providing information on seasonal landscape changes due to fluctuations in water levels, which was important for understanding changes in resource availability, mobility, and transportation. Moreover, visits during the dry period allowed the identification of areas adjacent to mounds that had been excavated to furnish silt for the earthworks. Precolumbian populations likely chose to settle along this right tributary of the upper Anajás River for ecological reasons. The Camutins headwaters are located in the seasonally inundated "campos" in the center of the island, an area known as a natural fish nursery. Moreover, the Camutins' relatively narrow and shallow canal allows for easy damming and management, as current practices have demonstrated.

The research was able to show that the Camutins River was inhabited from at least AD 500. It is suspected that the initial colonization started in the lower course of the river. Like other rivers on the island, the Camutins ceases to flow during the peak summer months, but the Anajás River tides replenish the lower course twice daily. It is possible to envision that the first management strategies would have included dams and removable fences to retain aquatic life in the lower river course. Initially, this practice could have arisen through cooperation between several families. Even today, natives seasonally move to the headwaters to fish, then locally consume or sell their harvest. Cooperation between several men is needed to build fences, place fishnets, and transport fish. In order to increase productivity, these simple techniques would have been complemented by the excavation of river-linked lakes or pools. As the population increased, the middle and upper river courses would also be occupied.

By ca. AD 700, a complete system of hydraulic control and management of aquatic resources was in place in the lower Camutins River associated with a ceremonial and political nucleus comprised of four mounds (M-1, M-16, M-17, M-18) (Figure 19.3), the most impressive of which, M-1, attained a height of approximately 9 m at its top platform. The mounds were built by the accretion of silt obtained during lake excavation. Regular maintenance of the aquatic system produced additional sediment that was eventually added to the top of the mounds, helping to build platforms at different levels, while increasing their area and height (Figure 19.4).

Although mound height was a function of fishpond excavation, such monumental constructions likely had symbolic significance as statements of power and prestige. They demonstrated the ability to organize labor and control critical resources. Moreover, the fact that the largest ceremonial mounds were located next to the major lakes indicates a correlation between ceremonial stage and control over strategic resources (e.g., fish and water) (Figure 19.5). Ethnographic data have indicated that areas with higher productivity along rivers are commonly associated with high rank people in hierarchical societies. Amerindians living along the upper Uaupés River, for example, recall that their ancestors arrived in a

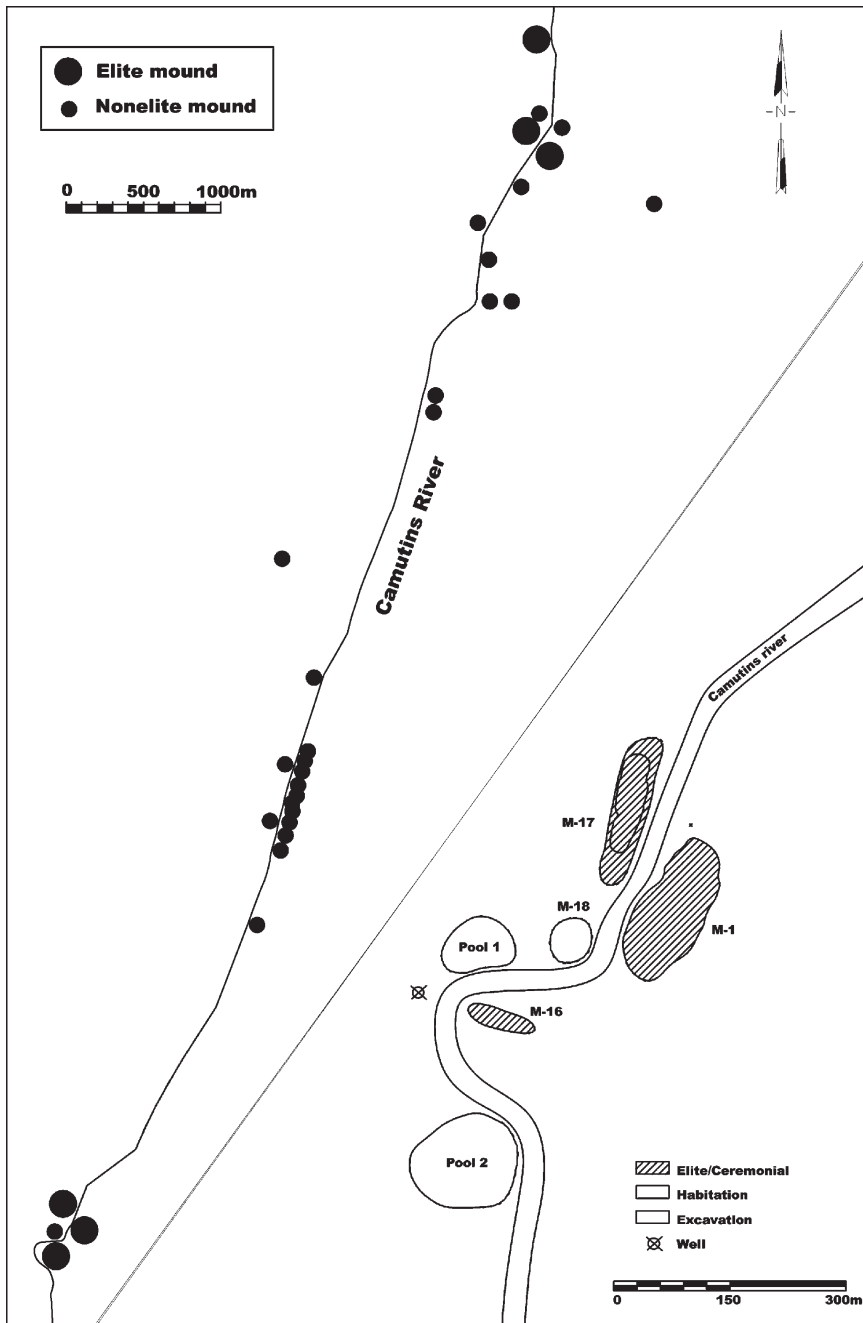


Figure 19.3. Upper left: Distribution of mounds along the Camutins River. Lower right: The ceremonial core, at the lower river course. (Denise Schaan)

large snake canoe, in which they were placed according to rank order, being the same order preserved in settling along the river (Chernela 1997).

As far as earthmoving activities are concerned, excavation of the pools and consequent mound construction would require a considerable effort at the onset, while routine

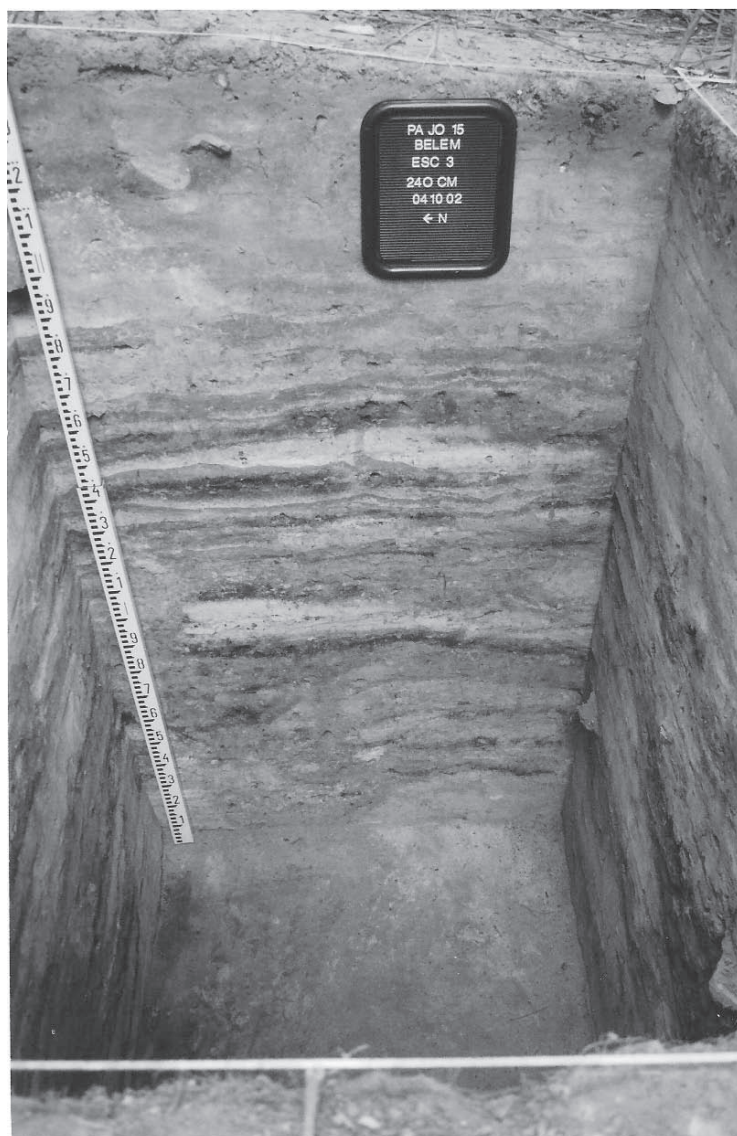


Figure 19.4. The stratigraphy of M-17 shows the superimposition of occupational surfaces and silt deposited during lake excavation. (Denise Schaen)

maintenance would be seasonal and would have required less mobilization of labor. It is estimated that a small number of people (perhaps fifty) could have built the system over the course of three to ten years.

Three kilometers upriver, in the middle Camutins, fifteen habitation mounds of various sizes were inhabited by populations that probably worked at building the dams, ponds, and mounds. They were most likely dedicated to subsistence activities related to fishing, collecting and probably some small-scale cultivation. A last group of three ceremonial and twelve habitation mounds was located along the upper course of the river. In this group, the

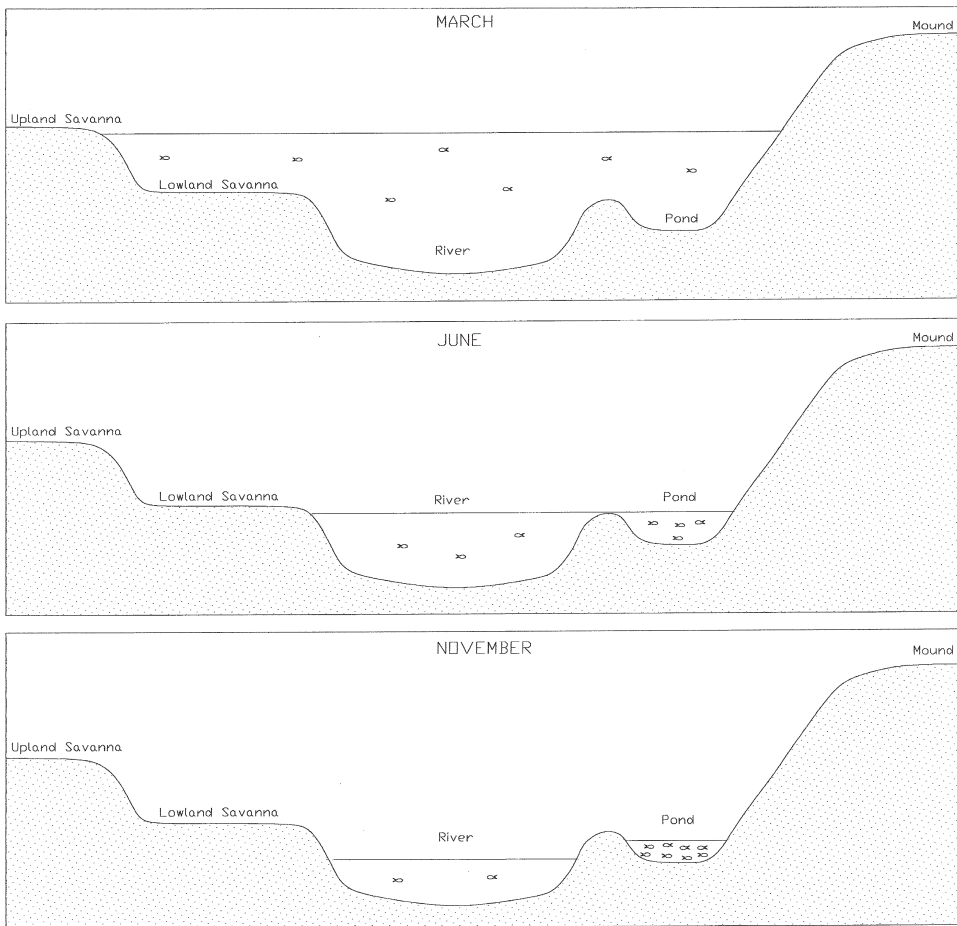


Figure 19.5. Model of hydraulic management, showing water levels at different seasons of the year. (Denise Schaan)

ceremonial mounds enclosed the settlement, suggesting a defensive strategy. These elite mounds contained material culture similar to M-1 and M-17, but lacked major earthworks (Figure 19.6).

The excavations did not produce data allowing for a direct assessment of population figures for the whole settlement system. However, the available area at the mound's top platform would allow for only one or two long houses (following ethnographic patterns), providing an estimate of a maximum population of 2,000 people for the entire Camutins chiefdom (Schaan 2004: 170–72).

Political Economy

Stanish (2004) proposes that an intensified economy that could support chiefly emergence could have arisen based on cooperation instead of competition. As productivity increased, some individuals or families had the opportunity of establishing differential access to the

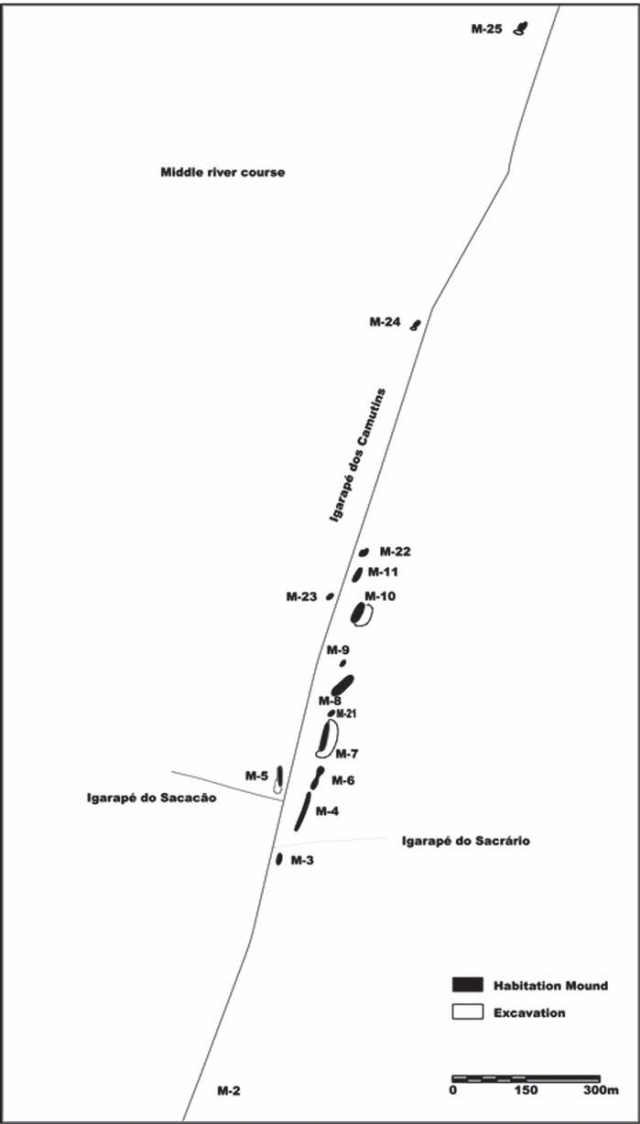


Figure 19.6. Distribution of mounds at the: a. Middle river course; b. upper river course. (Denise Schaan)

means of production and/or the products themselves (Gilman 1991). This differential access would create the economic basis for social stratification (Fried 1967:52).

The Camutins case is also illustrative of the association between resource concentration and the exercise of its control through ritual. Feasting, ancestor worship, and female rites took place mainly on the two larger mounds, M-1 and M-17, located on opposite sides of the lower river course, next to the main fishponds. M-16, located south of M-1, was also an elite mound, but probably played a secondary role (M-16 was intensively excavated by the land owner, who reportedly found only six funerary urns of similar size, shape and iconography).

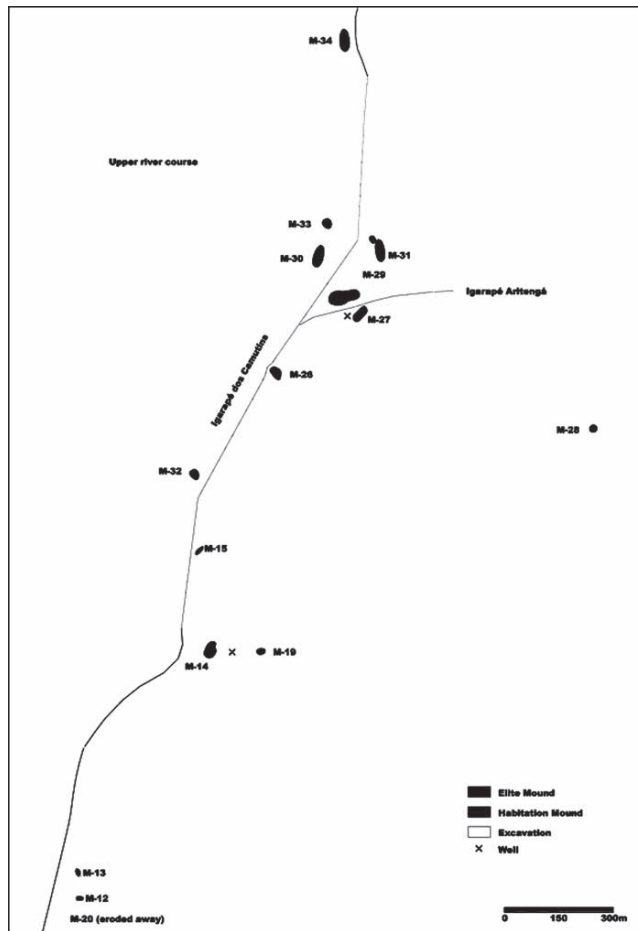


Figure 19.6. continued

Household features were found in both M-1 and M-17, confirming that these mounds, once called “cemetery mounds” by Meggers and Evans (1957), were in fact inhabited, as Roosevelt had already verified in her research at Teso dos Bichos and Guajará mounds (Bevan and Roosevelt 2003; Roosevelt 1991). In particular, the excavations at M-17 (M-1 was found largely looted) demonstrated that the elite were living next to their ancestors (Figure 19.7). Twenty-four funerary urns, associated with pottery vessels and other objects, including clay stoves, were discovered in a discrete 25 m² sector excavated to a depth of 2.2 m.

Some vessels contained primary and secondary burials of single individuals (Sheila Mendonça did a preliminary analysis of the human remains, described in Schaan 2004: 241–248) together with a small number of non-perishable items such as ceramic tangas (female pubic coverings), small globular vessels, plates, and stone axes (in two burials). One of the oldest urns was a primary interment of a ten-year-old child, placed together with a stone axe and a stone bead necklace around the neck; there are no rocks on the island. Although the vessel was undecorated, the presence of long-distance exchange items (the stone objects) with a young child is indicative of high status and hereditary rank.



Figure 19.7. Funerary vessels excavated from top platform of M-17. (Denise Schaan)

The burials span a 400-year period and display noticeable changes in mortuary practices through time, going from primary burial in large ceramic vessels to secondary burial in both large and small vessels. The most recurring urn type in M-17 was a red-on-white painted vessel, displaying curvilinear and geometric designs, associated with the major part of the sequence from AD 700 to 900 (Figure 19.8). These vessels share the common feature of snake skin patterns in a band just below the neck or rim. Structurally similar designs are recurrent on virtually all Marajoara ceremonial artifacts indicating the importance of an ancestral snake in Marajoara sacred symbolism.

Given the absence of any outstanding burial among all of those investigated, and considering similarities in vessel iconography and grave goods, it can be concluded that all individuals belonged to the same rank order, as if a kin group was in power. The proximity between elite residence, elite burials, ceremonial theater, and critical resources speaks to the symbolic control that the elite exercised over the means to sustain life, probably justifying their differential access to resources as a function of their close relation to ancestors.

The abundance of pottery related to feasting and food preparation, together with some artifacts associated with the consumption of tobacco and hallucinogenic beverages attest to the importance of ritual and ceremonial exchange in the political economy (Figure 19.9). Feasts were likely to have been an opportunity for celebrating cooperation, as well as promoting exchange and integration (Chernela 1997; Dietler and Hayden 2001). Time and resources invested in funerary paraphernalia also indicate that ancestor worship was a means to promote social cohesion and to show the elite's acquaintance with the supernatural world, a strategy commonly used to justify privileged access to limited resources.

Craft production is also an aspect of the political economy. Abundant workshop waste indicated that ceremonial and domestic pottery was produced in both M-1 and M-17.



Figure 19.8. A number of funerary vessels from M-17 show similar decorative patterns. (Drawings by Tayane Gama).

In M-17, children's pottery toys and the presence of tanga sherds together with remains of pottery production suggest that ceramics were produced in household contexts. Differences in the style and shape of vessels between M-1 and M-17 also indicate local variation resulting from localized production. Due to climatic conditions pottery production was restricted to the summer months. The data points to a kin-based seasonal ceramic production for self-consumption, inconsistent with most definitions of specialized pottery production (see, e.g., Costin 1991:4). Elite members are likely to have spent time and resources fulfilling

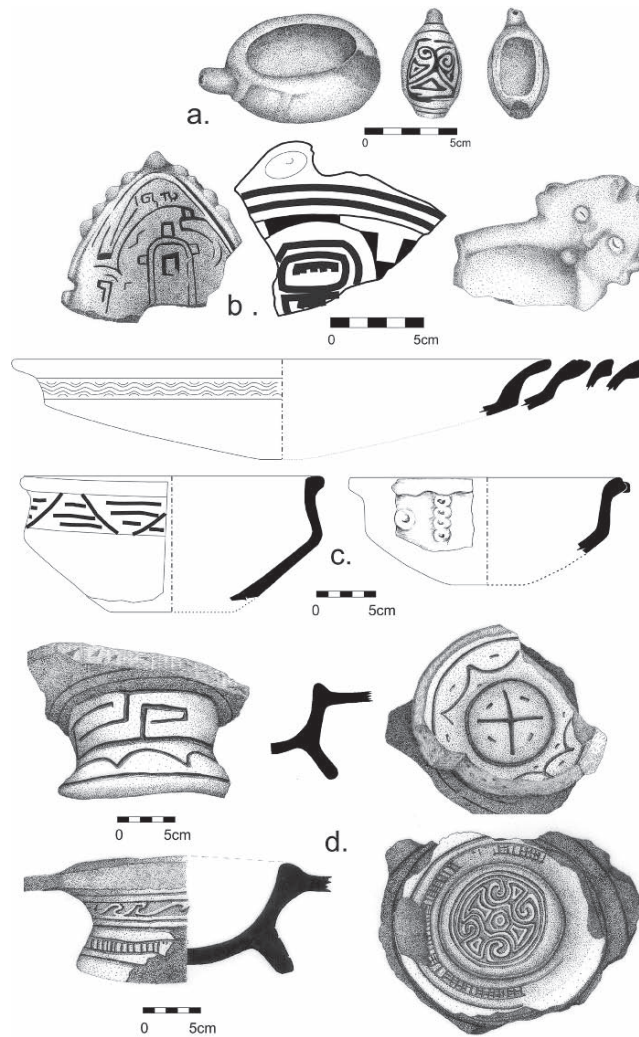


Figure 19.9. Ceramics for feasting at M-17. a. Snuffers; b. Small, exotic decorated plates; c. Serving vessels; d. Platter-bowls. (Denise Schaan)

the requirements of a highly valuable and socially important activity by obtaining the necessary skills to produce the ceremonial pottery.

Gender Iconography and Female Rites

Marajoara iconography is characterized by a massive representation of females on funerary vessels and figurines, stimulating a scholarly debate on female social and political roles in the society. Features such as breasts, pubic triangles and, occasionally, the uterus (sometimes pregnant) appear together with heads, faces, arms, and legs, giving shape to several pottery objects. Anthropomorphic funerary urns almost always represent females whose body parts are zoomorphic (for instance, owl or scorpion eyes, snake-arms, vulture

head-shoulders, etc.). The ritual construction of social and individual identities through body painting and scarification are represented by painted and incised designs.

Some female figurines have phallic shapes, thus combining female and male characteristics in a single object (Figure 19.10). A number of these objects seem to have functioned as rattles, since they are hollow and contain loose pebbles that produce noise when shaken. Yet the most notable characteristic of these figurines is their impressive variability in shape, size, and decoration, which suggests that they might have represented individuals. In a study of figurines from a museum collection, a recurring pattern of breakage at the neck was observed. It seems that these objects were ritually broken after being used (Schaan 2001a, b). One possible explanation is that figurines were shamanic tools, used during curing rites (DeBoer 1998). At the Camutins site, fragmented figurines were recovered from all elite mounds, attesting to their widespread use, regardless of the differences in mound size and location.

Marajoara iconography also displays a degree of variation in decorative motifs and techniques of decoration that probably conveyed information on social identity, ownership, and social boundaries. Personal objects such as tangas, for example, vary in size and decoration, probably due to social status differences among women.

Red-on-white designs on tangas, for example, are believed to have represented social identities (Schaan 2001b). It is possible that these tangas were used by girls

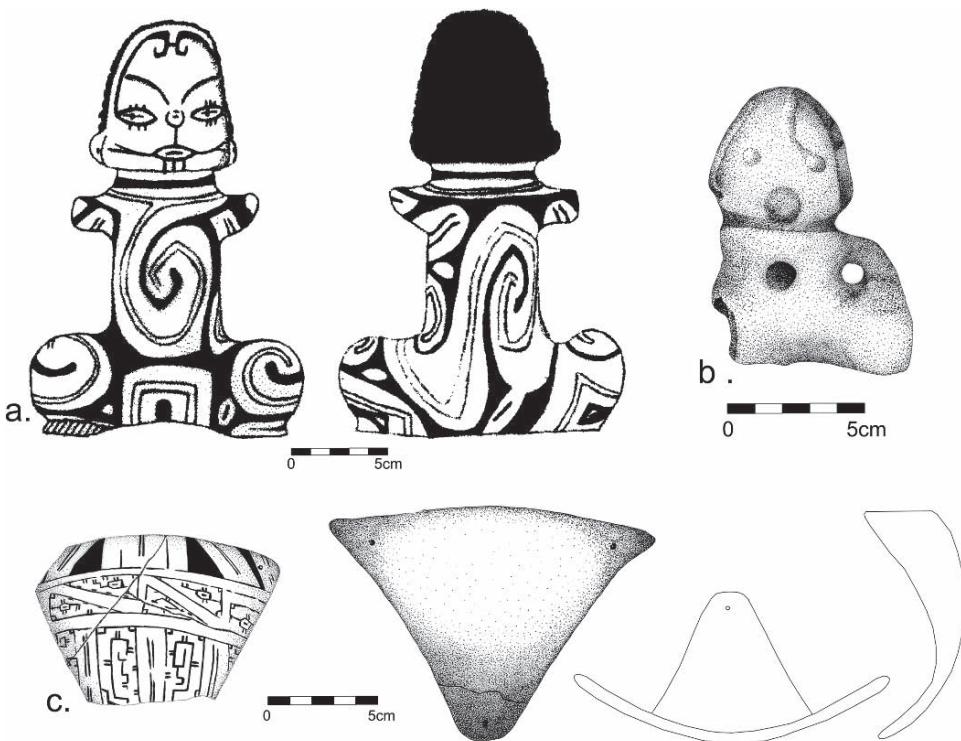


Figure 19.10. Marajoara culture figurines and tangas. a. Female figurine from Marajó Island (No.T220, Museu Paraense Emílio Goeldi, drawing by Julice Pimentel); b. Sexless figurine from M-1, Camutins site; c. Tangas from M-17, Camutins site. (Denise Schaan)

during initiation rites, while the more common (and usually larger) red tangas were used by the elder female population. The virtual absence of tangas in elite mounds other than M-1 and M-17 reinforces the idea that special rituals were carried out only in these two mounds. It also suggests, together with the abundant female iconography always escorted by recurrent snakeskin patterns, a close relationship between females, snakes, and ancestors.

CONCLUSION

Although not common, there are examples of chiefly societies that evolved on the basis of a foraging economy, especially through the exploitation of abundant aquatic resources (Arnold 2001; Erickson 2000; Goggin and Sturtevant 1964, quoted by Carneiro 1981: 49; Moseley 1975, but cf. Haas and Creamer 2004 and Pozorski and Pozorski in Chapter 31 of this volume; Widmer 1988). In such societies rulers may control the facilities that allow intensification, requiring the population to work in building and maintaining the facilities (such as fish weirs, boats, and drying and storage places) in exchange for food and protection (Johnson and Earle 2000: 262–263). With the ability to produce surplus to sustain the ruling elite, the chiefs also guarantee their followers the security of having food supplies year round due to storage facilities and technology. This arrangement may be especially attractive in places where wild resources are seasonally abundant requiring both management and storage capabilities.

As Widmer (1988: 280–281) has pointed out, the intensive exploitation of aquatic resources, usually seen as a foraging economy, actually follows the logic of agricultural systems. Aquatic resources are not only renewable, they can be managed in order to assure reproduction and availability. Indeed, in areas where aquatic resources are highly productive, agricultural intensification is dispensable (Carneiro *ms.*). Therefore, investment of time and resources in order to intensify fishing may not be a matter of lack of choice, but rather of cost-benefit reasoning.

At the Camutins site, the intensification of fishing enabled populations to rely on a stable protein resource, promote population growth, and develop complex sociopolitical institutions. It is likely that traditional kin groups claimed rights over the administration of the aquaculture systems, which probably first started as cooperative units, promoting intensification with little labor investment (see Stanish 2004). This dominance was justified by means of a religious system in which ancestor worship and access to long-distance exchange networks played important roles. It is predicted that the existence of similar ecological conditions at the headwaters of several rivers that drain the savanna grasslands enabled the development of similar social formations across the island, providing a model that awaits further testing. It is possible that other mound groups, not yet studied, will reveal several competitive chiefdoms or social formations with different levels of complexity. Preliminary data indicate the absence of a supra-regional political center, which suggests a system of alliances between chiefdoms that is compatible with peer-polity interaction models (Renfrew 1986; Roosevelt 1999; Schaen 1997).

Practices for the maximization of food production, such as river damming and fishing in temporary lakes and creeks that fill with aquatic life at the end of the flood season have often been reported among Amazonian peoples. The abundance of aquatic resources described in early chronicles and in colonial documents, both along the Amazonian floodplains and in the estuary (Marajó Island included), have encouraged scholars to consider

that the protein obtained from aquatic fauna was critical in promoting sedentary life and cultural developments in the region (Carneiro 1995, ms.). However, a bias that considers foraging as an unreliable economic enterprise has prevented scholars from adequately interpreting the archaeological record.

The enduring “agricultural chiefdoms” paradigm is ironic considering indigenous cosmologies that “privilege social and symbolic interactions with the animal world,” as Viveiros de Castro (1996:194) has pointed out. That paradigm just does not fit the archaeological evidence in Amazonia. Earthworks have been identified in several locations across Amazonia such as the central Amazon (Neves and Petersen in press) and the Upper Xingu (Heckenberger 2005) and, despite the fact that many of them are located next to lakes and streams, scholars have not correlated them to intensified fishing economies that would provide the necessary surplus for the emergence of complex sociopolitical systems. Mass fish harvesting is common in several locations in Amazonia today, especially in lakes and rivers affected by tides and seasonal water levels. Many of these locations were formerly inhabited by populations known for their elaborate pottery industries. For example, in the lakes that border the Trombetas River (where there are sites related to the Incised-Punctated Tradition; see Hilbert and Hilbert 1980) net fishing at the end of the rainy season is highly productive, suggesting that intensive fishing was also important there in pre-colonial times.

Increased attention to earthworks related to aquatic resource management would benefit our understanding of pre-Columbian complex societies in Amazonia. Practices that are presently common among indigenous and caboclo (mixed Brazilian Indian and European or African ancestry) populations most certainly originated in pre-Columbian times and may be a key to understanding the particular sociopolitical features that differentiate Amazonian complex societies from everything else we have seen on the continent.

ACKNOWLEDGMENTS This chapter summarizes the results of my doctoral research, so I am grateful to those individuals and institutions that helped me along the way. The research was possible thanks to funds provided by the Heinz Endowment Latin American Archaeology Fellowship from the University of Pittsburgh, the National Science Foundation (Grant No. 0233788), and CNPq – Conselho Nacional de Desenvolvimento Científico e Tecnológico of the Brazilian Government. I thank the MCT/CNPq-Museu Paraense Emílio Goeldi, which has always supported field and laboratory work. Thanks to Morgan Schmidt for helping me with the editing.

REFERENCES

- Ackermann, Fritz L., 1963, O lago Arari da ilha de Marajó e seus problemas. *Revista Brasileira de Geografia* XXV (2): 273–276.
- Arnold, Jeanne E. (ed.), 2001, *The Origins of a Pacific Coast Chiefdom: The Chumash of the Channel Islands*. University of Utah Press, Salt Lake City.
- Bevan, Bruce W. and Anna C. Roosevelt, 2003, Geophysical exploration of Guajará, a prehistoric earth mound in Brazil. *Geoarchaeology: An International Journal* 18 (3): 287–331.
- Carneiro, Robert L., 1995, The history of ecological interpretations of Amazonia: does Roosevelt have it right? In *Indigenous Peoples and the Future of Amazonia*, edited by Leslie E. Sponsel, pp. 45–70. The University of Arizona Press, Tucson.
- _____, ms., The Ecological Basis of Amazonian Chiefdoms. Unpublished paper. 88 pp.
- Chernela, Janet M., 1997, Pesca e hierarquização tribal no alto Uaupés. In *Suma Etnológica Brasileira. Edição Atualizada do Handbook of South American Indians*, edited by Darcy Ribeiro, pp. 279–95. Third edition. UFPA, Belém.

- Costin, Cathy Lynne, 1991, Craft specialization: issues in defining, documenting, and explaining the organization of production. In *Archaeological Method and Theory*, Vol. 3, edited by Michael B. Schiffer, pp. 1–56. University of Arizona Press, Tucson.
- DeBoer, Warren R., 1998, Figuring figurines. The case of the Chachi, Ecuador. In *Recent Advances in the Archaeology of Northern Andes*, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, pp. 121–127. University of California Press, Los Angeles.
- Derby, Orville, 1879, The artificial mounds of the island of Marajo. *American Naturalist* 13: 224–229.
- Dietler, Michael and Brian Hayden, 2001, Digesting the feast - good to eat, good to drink, good to think: an introduction. In *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power*, edited by Michael Dietler and Brian Hayden, pp. 1–22. Smithsonian Institution Press, Washington and London.
- Erickson, Clark L., 2000, An artificial landscape-scale fishery in the Bolivian Amazon. *Nature* 408: 190–193.
- Fried, Morton H., 1967, *The Evolution of Political Society: An Essay in Political Anthropology*. Random House, New York.
- Furtado, Lourdes, Maria de Nazaré Lima, Maria das Graças Albuquerque, and Aluísio Fonseca de Castro, 2002, *Repertório Documental para a Memória da Pesca Amazônica*. Coleção Alexandre Rodrigues Ferreira. Museu Paraense Emílio Goeldi, Belém.
- Haas, Jonathan and Winifred Creamer, 2004, Cultural transformations in the Central Andean Late Archaic. In *Andean Archaeology*, edited by Helaine Silverman, pp. 35–50. Blackwell, Malden, MA.
- Gilman, Antonio, 1991, Trajectories towards social complexity in the later prehistory of the Mediterranean. In *Chiefdoms: Power, Economy and Ideology*, edited by Timothy Earle, pp. 146–168. Cambridge University Press, Cambridge.
- Goggin, John M. and William C. Sturtevant, 1964, *The Calusa: A Stratified, Nonagricultural Society (with Notes on Sibling Marriage)*. McGraw-Hill, New York.
- Heckenberger, Michael J., 2005, *The Ecology of Power: Culture, Place, and Personhood in the Southern Amazon, A.D. 1000–2000*. Routledge, New York and London.
- Hilbert, Klaus and Peter Paul Hilbert, 1980, Resultados Preliminares da Pesquisa Arqueológica nos Rios Nhamundá e Trombetas. *Boletim do Museu Paraense Emílio Goeldi. Série Antropologia* 75.
- Hilbert, Peter Paul, 1952, Contribuição à arqueologia da Ilha de Marajó. Os tesos Marajoaras do alto Camutins e a atual situação da Ilha do Pacoval, no Arari. *Instituto de Antropologia e Etnologia do Pará* 5: 5–32.
- Johnson, Allen W. and Timothy Earle, 2000, *The Evolution of Human Societies: From Foraging Group to Agrarian State*. Second edition. Stanford University Press, Stanford.
- Meggers, Betty J., 1954, Environmental limitation on the development of culture. *American Anthropologist* 56 (5): 801–24.
- , 2001, The mystery of the Marajoara: an ecological solution. *Amazoniana* XVI (3/4): 421–440.
- and Jacques Danon, 1988, Identification and implications of a hiatus in the archeological sequence on Marajo Island, Brazil. *Journal of the Washington Academy of Sciences* 78 (3): 245–53.
- and Clifford Evans, 1957, *Archeological Investigations at the Mouth of the Amazon*. Bulletin 167. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Moseley, Michael E., 1975, *The Maritime Foundations of Andean Civilization*. Cummings, Menlo Park, CA.
- Murrieta, Rui Sérgio, Darna L. Dufour, and Andrea D. Siqueira, 1999, Food consumption and subsistence in three caboclo populations on Marajó Island, Amazonia, Brazil. *Human Ecology* 27 (3): 455–76.
- Neves, Eduardo G. and James B. Petersen, in press, The political economy of pre-Columbian amerindians: landscape transformations in Central Amazonia. In *Time and Complexity in the Neotropical Lowlands: Studies in Historical Ecology*, edited by William Balée and Clark Erickson. Columbia University Press, New York.
- OEA, 1974, *Marajó. Um Estudo para seu Desenvolvimento*. Organização dos Estados Americanos, Washington, D.C.
- Palmatary, Helen C., 1950, The pottery of Marajo Island, Brazil. *Transactions of the American Philosophical Society* 39 (3).
- Renfrew, Colin, 1986, Introduction. Peer polity interaction and socio-political change. In *Peer Polity Interaction and Sociopolitical Change*, edited by Colin Renfrew and John F. Cherry, pp. 1–18. Cambridge University Press, Cambridge.
- Roosevelt, Anna C., 1991, *Moundbuilders of the Amazon: Geophysical Archaeology on Marajo Island, Brazil*. Academic Press, San Diego.
- , 1999, The development of prehistoric complex societies: Amazonia, a tropical forest. In *Complex Politics in the Ancient Tropical World*, edited by Elisabeth A. Bacus and Lisa J. Lucero, pp. 13–33. Archaeological Papers of the American Anthropological Association, No. 9.

- Schaan, Denise P., 1997, *A Linguagem Iconográfica da Cerâmica Marajoara. Um Estudo da Arte Pré-histórica na Ilha de Marajó, Brasil (400–1300 AD)*. Coleção Arqueologia n. 3. Edipucrs, Porto Alegre.
- , 2001a, Estatuetas Marajoara: o simbolismo de identidades de gênero em uma sociedade complexa Amazônica. *Boletim do Museu Paraense Emílio Goeldi. Série Antropologia* 17 (2): 437–477.
- , 2001b, Into the labyrinths of Marajoara pottery: status and cultural identity in an Amazonian complex society. In *The Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto, and Eduardo G. Neves, pp. 108–133. British Museum Press, London.
- Simões, Mário F. and Napoleão Figueiredo, 1964, *Projeto Marajó*. Museu Paraense Emílio Goeldi. Field Report. Unpublished.
- and Napoleão Figueiredo, 1965, *Projeto Marajó*. Museu Paraense Emílio Goeldi. Final Report. Unpublished.
- Sioli, Harald, 1984, *The Amazon: Limnology and Landscape Ecology of a Mighty Tropical River and Its Basin*. Monographiae biologicae, 56. Kluwer Academic, Dordrecht.
- Smith, Nigel, 2002, *Amazon Sweet Sea: Land, Life, and Water at the River's Mouth*. First edition. University of Texas Press, Austin.
- Sombroek, William G., 1966, *Amazon Soils. A Reconnaissance of the Soils of the Brazilian Amazon Region*. Centre for Agricultural Publication and Documentation, Wageningen.
- Stanish, Charles, 2004, The evolution of chiefdoms: an economic anthropological model. In *Archaeological Perspectives on Political Economies*, edited by Gary M. Feinman and Linda M. Nicholas, pp. 7–24. The University of Utah Press, Salt Lake City.
- Steward, Julian H. (ed.), 1948, *Handbook of South American Indians, Vol. 3, The Tropical Forest Tribes*. Bulletin 143. Bureau of American Ethnology. Smithsonian Institution, Washington D.C.
- Viveiros de Castro, Eduardo, 1996, Images of nature and society in Amazonian ethnology. *Annual Review of Anthropology* 25: 179–200.
- Widmer, Randolph J., 1988, *The Evolution of the Calusa: A Nonagricultural Chiefdom on the Southwest Florida Coast*. University of Alabama Press, Tuscaloosa.

Ecology, Ceramic Chronology and Distribution, Long-term History, and Political Change in the Amazonian Floodplain

EDUARDO GÓES NEVES

INTRODUCTION

In the sixteenth and seventeenth centuries AD, when the first Europeans ventured into the Amazon, they described the presence of settlements placed along the rivers, sometimes so large that one would have to travel several miles to pass by their full extent. On those settlements, according to the sources, one would find paramount chiefs who commanded vast areas, including other settlements, and were able to mobilize large numbers of warriors. In some places settlements were surrounded by palisades, further evidence that warfare was fairly common at the time. Other chroniclers also speak of the beauty of the pottery, which they compare favorably to the pottery of Málaga (Papavero, Teixeira, Overal and Pujol-Luz 2002; Porro 1993, 1994).

Five hundred years later, much of what we know about the ways of living of the settled societies along the floodplains of the Amazon and its major tributaries still comes from early colonial reports. Thus, much of their pre-colonial history is still marred in speculations: were these powerful chiefdoms that descended from groups that occupied those settings continuously for thousands of years (Carneiro 1995; Lathrap 1970; Roosevelt 1991a)? Or were these reports merely ideological propaganda aimed at securing funds in Europe for other forays in this vast area (Meggers 1993–95)? It will be a while before a coherent picture of the archaeology of the Amazonian floodplain emerges despite a noticeable increase in first-hand archaeological research in the archaeology of the area starting in the early 1990s (Erickson 2000, 2005a, 2005b; Gomes 2002, 2005; Guapindaia

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

2001; Heckenberger 2000, 2005; Heckenberger, Petersen and Neves 1999; Heckenberger et al. 2003; Lima, Neves and Petersen 2006; Mora 2003; Neves, Petersen, Bartone and Silva 2003; Neves, Petersen, Bartone and Heckenberger 2004; Petersen, Neves and Heckenberger 2001; Morales 1998; Roosevelt 1991a; Roosevelt et al. 1991, 1996; Roosevelt, Douglas and Brown 2002; Schaan 2001a, 2004).

Evidence accumulated during recent decades shows that the history of human occupation of the Amazon floodplain is more complex than can be subsumed by disputes employing typological, social evolutionary categories such as tribe versus chiefdom. The data also show that the role of environmental forces in the explanation of past human dynamics was perhaps exaggerated by previous scholars, and that social or political variables could have been as important as ecological adaptation in some contexts. Today scholars are achieving a more historical-based, particularistic focus that is needed before further attempts at generalizations can be successful.

This paper intends to examine the available archaeological evidence of the social formations that occupied the Amazonian floodplain from ca. 500 BC to AD 1500. It is based on work done in different South American countries, but it will have a strong focus on the Brazilian Amazon due to the availability of new information for this area, the comparatively larger size of the Amazon basin in Brazil, and the fact that this is my own area of active research. In the Brazilian Amazon, as in other Amazonian countries, the possibility of doing large-scale fieldwork is severely limited by logistical problems such as cost of transport, site visibility, access to Indigenous lands and the increasing danger posed by drug trafficking and guerilla warfare (Oyuela-Caycedo and Bonzani 2005: xviii; Politis 1996). On the other hand, there is a noticeable increase in large-scale regional projects related to contract archaeology, mostly from mining, hydroelectric and pipeline construction, normally in areas located away from the main Amazonian floodplain. Although much of the data remain unpublished, in the few cases that are reported the publications have brought new and insightful information on cultural sequences of poorly known areas (Miller et al. 1992).

THE AMAZONIAN FLOODPLAIN

The focus on the floodplain as a differentiated area in the cultural history of the Amazon builds on a long and illustrious tradition in anthropology that divides the Amazon basin in two general ecological areas: the *várzeas*, or floodplains, and the *terras firmes*, or uplands (Lathrap 1968a; Meggers 1996; Moran 1993: 26; Roosevelt 1980). That tradition goes back at least to Erland Nordenskiöld's early synthesis of Amazonian archaeology (Nordenskiöld 1930). In it, Nordenskiöld called attention to the fact that, in lowland South America, the three major river basins—from north to south: Orinoco, Amazon and Paraná (Figure 1.2)—are directly or indirectly connected, creating a network that would have allowed the movement of people throughout the continent. Nordenskiöld's insight holds some culture-historical truth (Heckenberger 2002), but most importantly, it laid a methodological foundation for differentiating between fluvial-oriented versus hinterland settlements in Amazonia, in terms of size, density and length of occupation. Fluvial in this case means those occupations related to first, second or even third order streams. Nordenskiöld's idea was subsequently used by Lowie (1948) in his definition of the tropical forest culture type. For Lowie, one of the key features of socio-political organization characteristic of the type was emphasis on fluvial occupation (Lowie 1948: 1). Finally, based on Nordenskiöld and Lowie, as well as

on the work of cultural geographer Carl Sauer (1969: 21–23), Donald Lathrap was the first archaeologist to explicitly propose that human occupation of the Amazon would be directly conditioned by access to aquatic resources, mostly as regards demographic growth and the emergence of social inequality (Lathrap 1968a: 62). For Lathrap, drastic ecological differences between river or lake-oriented versus hinterland-oriented settlements, especially in access to animal protein, would have a direct influence on the duration, density and size of settlements in pre-colonial Amazonia. In this model, the abundance of fish, mammals, reptiles and waterfowl in fluvial settings would provide a stable and predictable source of food resources, providing conditions for long-term population growth and sedentary settlements. Hinterland occupations, on the other hand, would be limited to small size and short time span due to the relatively low availability and unpredictable nature of resources in those settings (Lathrap 1968b).

Following Lathrap's work it became accepted among archaeologists and cultural anthropologists that in the Amazon, fluvial-oriented settlements would be consistently larger and occupied for much longer periods than hinterland settlements. The problem, however, is that not much research has been done on hinterland settings, due to the usual logistical problems inherent to working in the Amazon. Every once in a while, though, evidence from hinterland settings shows that, although valid at a general level, Lathrap's hypothesis probably simplifies a more complex pattern. This is the case, for instance, in the geometric-shaped earthworks recently found in the upper Acre basin (Pärssinen, Ranzi, Saunaluoma and Siiriäinen 2003) or in the upper Xingu basin in Brazil (Heckenberger 2005; Heckenberger et al. 2003). These are areas located far from the major channel of the Amazon, but it is clear that similar research in comparable places will show that important floodplain environments exist, even though far removed.

The term "Amazonian floodplain" is employed here to designate those areas placed immediately adjacent to first, second and third order rivers, always downstream from the rapids that mark the transition from the greater Amazonian plain to the Andes in the west, and to the Brazilian and Guiana plateaus in the south and north. They are settings that normally lie less than 100 masl, even when very far from the Atlantic Ocean. For instance, the city of Iquitos, in the Peruvian Amazon, which lies roughly 3,400 km from the mouth of the river, is only 100 masl. The Amazon itself forms nearby, where its two major upper tributaries—the Marañón and Ucayali rivers—meet after flowing northward from the Central Andes. From there the Amazon flows eastward until it reaches the Atlantic Ocean close to the city of Macapá, in Brazil.

It is common that rivers in the Amazon basin change their names when crossing national borders or even after joining other rivers. The Amazon River itself is a good example: it has this name when it flows through Peru and Colombia, after the Marañón and Ucayali rivers meet. Then, after it enters Brazil, the Amazon is known as Solimões until it joins the Río Negro, in central Amazonia. After that, it is known again as Amazon until its mouth. The same happens with the Putumayo-Içá, the Caquetá-Japurá and the Gauinía-Negro. In the text, I will use these regional names.

The Amazon River and all of its large tributaries that have headwaters in or near the Andes of Bolivia, Peru, Ecuador and Colombia are white water rivers. These rivers contain sediment eroded during rainy seasons and sediment from snow-melt in mountainous catchment areas. The Andes are a recent geological formation. As a result, the floodplains of white-water rivers are typically fertile, although their agricultural cycle is limited by the length of the dry seasons and the unpredictability of the flood regimes (Meggers 1996). More important for human occupation, these rivers and floodplains support a rich wild life,

including fish, mammals, fowl and reptiles that were a reliable source of protein for the people settled along and around them.

White water rivers are active, and as a result their channels are constantly being rebuilt by both erosion and deposition. One visible manifestation of that process is the development of ox-bow lakes whose different stages are in fact ancient stretches of river cut off from the main channel, to eventually become lakes and swamps. Lathrap (1968a) has shown how along the Ucayali River this pattern of erosional secession had important consequence for dating archaeological sites. Older sites are normally located away from the present-day course of the river, next to swamps or ox-bow lakes. The intense erosive action of rivers can also lead to the destruction of archaeological sites. One good example is the site of Miracanguera, located in the central Amazon, close to the city of Itacoatiara, which was identified and partially excavated by the botanist Barbosa Rodrigues in the 1880s (Barbosa Rodrigues 1892: 2). Forty years later, when visited by Curt Nimuendajú in the 1920s, the site had disappeared, having been carried away by the Amazon River (Nimuendajú 2004: 160–161).

Besides white water rivers, there are two other broad categories of rivers in the Amazon basin: clear water and black water rivers. Clear water rivers run from geologically old catchment areas, such as the Guiana Plateau in the north, and the central Brazilian Plateau in the south. Their sediment load is much smaller than white water rivers, and consequently their floodplains are comparatively less productive. Among them are the Uatumã, Nhamundá-Trombetas, Tapajós, Xingu and Tocantins rivers. Black water rivers are probably the most common in the Amazon basin. However, with the exception of the Río Negro, black water rivers are normally small to medium in size, at least in Amazonian terms, being tributaries of larger, white or clear water rivers. Black water rivers have their catchment areas in geologically old settings, swamps or in areas of poor, sandy and well-drained soils. Their black color results from the dissolution of tannic acids from the decomposing litter on the ground. As a consequence, black water rivers are considerably less productive for humans than clear or white water rivers.

Discussion of the occupation of Amazonian floodplains presented here includes the alluvial plains of white, clear and black water rivers, although black and clear water rivers do not form classic várzeas, since the term applies only to the nutrient-rich floodplains of white water rivers (Moran 1993: 24–31). It also includes data from areas where the flood regime depends more on the annual pluvial cycle than on changes in river level, such as Marajó Island, located at the mouth of the Amazon, and the Llanos de Mojos in the Bolivian Amazon. The archaeology of the Orinoco River and the Guianas are not discussed at length here (see Chapters 13, 16, 17 and 23 in this volume).

CHRONOLOGICAL AND REGIONAL PATTERNS

The earliest known accepted evidence of human occupation in the Amazonian floodplain comes from Pedra Pintada cave, located in Monte Alegre, on the north bank of the lower Amazon. It is a sandstone cave where excavations done in the early 1990s revealed evidence of human occupation dating back to ca. 9200 years BC (Roosevelt et al. 1996, 2002). At Pedra Pintada, the abundance of plant and small faunal remains suggest a diversified economy rather than specialized big-game hunting. The same picture emerges from the sites located in the Araracuara area, in the Caquetá river in Colombia where the abundance of palm remains also suggests a diversified, non-specialized economy dating back

to ca. 7000 years BC (Mora 2003). In the lower Jamari River, a tributary of the upper Madeira River located close to the present-day city of Porto Velho, Miller et al. (1992) have identified a long sequence that covers the whole Holocene, with the early dates going back to 6800 BC. At the Dona Stella site, in the central Amazon, ongoing excavations have found bi-facial lithic artifacts, including projectile points, possibly dating to 5700 BC (Neves 2003). In the Carajá plateau of eastern Amazonia, located between the Xingu and Tocantins Rivers, excavations done in rock shelters have also produced evidence of human occupation dating back to the early Holocene (Magalhães 1994). The fact that these sites are located at places far away from each other—and in some cases away from the large rivers—demonstrates that different parts of the Amazonian floodplain were already occupied by the early Holocene. Also from Pedra Pintada and from the fluvial shell mound of Taperinha, located downstream from modern-day Santarém, Roosevelt has excavated grit-tempered pottery dating to the sixth and fifth millennia BC (Roosevelt 1995; Roosevelt et al. 2001, 2006). Confirmed by slightly later dates obtained for shell-tempered pottery from the Mina phase, excavated at maritime shell mounds on Atlantic coast east of the Amazon mouth (Roosevelt 1995; Simões 1981), they are the earliest dates for ceramic production in the Americas.

Based on Lathrap's influential "cardiac model," which proposed that the Amazonian floodplain was continuously and densely occupied since the mid-Holocene (Lathrap 1970a, b; Lathrap and Oliver 1987), there has been a tendency to imagine demographic pressure along the floodplain as early as 3,000 years ago (Hornborg 2005; Oliver 2001). However, the available archaeological data are not supportive of this idea (Heckenberger, Neves and Petersen 1998; Neves and Petersen 2006). To the contrary, the data show that, with the exception of the already mentioned upper Madeira basin (Miller et al. 1992) and the lower Amazon (Meggers and Danon 1988; Roosevelt 1991a; Schaan 2001a, 2004), signs of human occupation during that time are quite scanty. For instance, in the central Amazon—Lathrap's putative center of early cultural development in lowland South America—evidence of human occupation from 5700 to 500 BC is absent, despite the identification of more than 100 archaeological sites in a 900 km² research area (Neves 2003). At Peña Roja, on the Caquetá River, despite early dates showing occupation of the area ca. 9200 years BP there is a hiatus during the mid-Holocene, interrupted only around the Christian era (Cavelier, Herrera, Morcote and Mora 1995: 27; Herrera, Bray and McEwan 1980–81; Mora 2003: 91–92, 126; Mora, Herrera, Cavelier and Rodríguez 1991). A third example comes from the Santarém area. There, after the above-mentioned occupations with early ceramics at Pedra Pintada and Taperinha dating from ca. 6000 and 5000 BC, there is also a hiatus which is only interrupted much later on, with sites of the Pocó phase dating to 100 BC (Hilbert and Hilbert 1980), despite the recent discovery of occupations in the lower Tapajós with dates back to 1800 BC to 1200 BC (Gomes 2005: 231). In this area, however, there are also gaps between these early occupations and later occupations from the Christian era.

How should we interpret these hiatuses? Do they mean that the Amazon basin was scarcely occupied during the mid-Holocene? Is there a taphonomic bias resulting in the destruction or poor visibility of sites dating from this interval, possibly related to intensive soil erosion (Mora et al. 1991: 41–43)? Can these apparent hiatuses be correlated to climatic change events? Given the modest amount of research in the Amazon we are still far from answering these questions, but it is likely that all of these factors contribute to the current picture. Among the archaeologists working in the Amazon, Meggers has been the most forceful in pursuing positive correlations between climatic change—mostly supposedly related to

ENSO episodes—and gaps in the regional sequences (Meggers 1977, 1979, 1982). The problem is that, at the time, little research had been completed on Holocene climatic patterns. Data from pollen records (Absy and van der Hammen 1976; Baker et al. 2001; Behling and Hooghiemstra 2000; Behling and Lima da Costa 2000; Behling, Berrío and Hooghiemstra 1999; Behling, Keim, Irion and Nunes de Mello 2001; Berrío 2002; Burbridge, Mayle and Killeen 2004; Haffer 2001; van der Hammen 2001; van der Hammen and Hooghiemstra 2000), carbon isotopes in stable organic matter (Freitas et al. 2001) and hydrology (Aalto et al. 2003) show that the mid-Holocene could have been drier than the present, with a potential impact on the distribution and frequency of plant species without, necessarily, the development of open savanna vegetation and forest refuges proposed earlier (Meggers 1977, 1979). An alternative is also to propose that climatic variation at the time was probably more significant than previously thought, with a potential impact for human occupation. In the lower Xingu river a Mina phase fluvial shell mound with ceramics dating from 2000 BC has its basal strata under water, even during the dry season, which is interpreted as evidence that it accumulated during a time of drier conditions, when the water level was lower than today (Perota and Botelho 1992). At Chambira, in the upper Amazon, a ceramic assemblage composed by vessels with restricted forms, single and double spouts and small mouth diameters dating from 1500 BC to AD 1 has been interpreted as a technology adapted to minimizing evaporation at a time of drier climatic conditions (Morales 1998).

If the still tenuous evidence for drought during the mid-Holocene holds, it is likely that many of the archaeological sites from this time are today either destroyed, under water or even buried by tons of alluvial sediment. Conversely, one needs also to consider the possibility that drought and its subsequent changes on water level and forest cover may have had direct impacts on human occupation of the Amazon during that time. Traditionally, supposed reduction of the forest into refuges during the Holocene has been interpreted as conducive to human expansion into the Amazon (Meggers 1977). The archaeological and climatic data from the mid-Holocene suggest the opposite: human occupation surged only after current tropical climatic and ecological conditions were reached about 1000 BC. From this time on, one again sees strong and unequivocal signs of settlements in the floodplains and adjacent areas, a pattern that becomes clearer and stronger after the onset of the Christian era.

CULTURAL CHRONOLOGIES AND SOCIAL CHANGE IN THE FIRST AND SECOND MILLENNIA AD

The earliest signs of change in the patterns of social and political organization in the Amazonian floodplains are visible from ca. 2500 BC, with the first evidence of anthropogenic dark earths (ADEs) or *terras pretas* on the Jamari River, in the upper Madeira basin (Miller et al. 1992). The inception of the Ananatuba phase about 1400 BC marks the first sign of large sites on Marajó Island sites (Meggers and Danon 1988; Meggers and Evans 1957; Schaan 2004; Simões 1969). A little later, from 700 BC to AD 400, in the Upano basin of the Ecuadorian Amazon, at the Sangay site, a group of artificial mounds forming anthropomorphic figures when seen from the air was built and occupied (Rostain 1999).

From what is currently known, however, these seem to be isolated phenomena since no corresponding developments are seen at the same time elsewhere in the Amazon. It is rather later, from around the beginning of the Christian era on, that a widespread and visible pattern of population growth, site aggregation and noticeably anthropogenic landscape

changes become visible throughout the area (Neves and Petersen 2006; Petersen et al. 2001). These changes are matched, in the archaeological record, by the sudden appearance, at different times and places, of large sites with deep stratified ceramic deposits associated with anthropogenic dark soils (Kern et al 2003; Neves et al. 2003, 2005; Petersen et al. 2001); artificial earthworks (Pärssinen, Ranzi, Saunaluoma and Siiriäinen 2003) such as raised fields and causeways (Denevan 1966, Erickson 2000); large villages surrounded by moats and connected by road networks (Heckenberger 2005; Heckenberger et al 2003); artificial residential and funerary mounds associated with elaborate pottery (Meggers and Evans 1957; Roosevelt 1991a, 1996; Schaan 2001a, 2004); quasi-urban settlement systems also are associated with elaborate pottery, polished stone statuettes and long-ranging trade networks (Gomes 2002; Nimuendajú 2004; Roosevelt 1999); and the construction of circular megalithic structures (Nimuendajú 2004).

Most of these developments are organized into a cultural chronology first outlined almost fifty years ago. It divided Amazonian ceramics into four wide horizons, from older to younger, based on their decoration and paste: Zoned-Hachured, Incised Rim, Polychrome and Incised-Punctated (Meggers and Evans 1961, 1983). The cultural historical reconstitution embedded in this chronology is no longer valid, since it proposed that all of the horizons had their origin outside of the Amazon, either in the Andes or in northern South America, which is not the case. The chronology has also been revised, given that it originally proposed a shallow span for each of the horizons, which was later proven to be wrong, and hence the horizons are now classified as traditions (Meggers and Evans 1983; Roosevelt 1991; Schaan 2001b: 157). Finally, further work has shown that there are earlier complexes not identified in the early 1960s, such as the Mina phase ceramic-bearing shell mounds of the Atlantic shore (Roosevelt 1995; Simões 1981), and even earlier ceramics from the lower Amazon, in the sites of Taperinha and Pedra Pintada cave (Roosevelt 1995; Roosevelt et al. 1991). Now these earlier components must be added to the chronology. These problems notwithstanding, the backbone of the sequence retains utility warranting continued use (Lima et al. 2006). Ideally it would be interesting if data on ceramic chronology could be matched by more information on things such as settlement patterns, site occupation chronology, intra-site spatial patterns and so forth, but this is not available in the vast majority of cases (Schaan 2005). That was the case, for instance, of the Manacapuru phase in the central Amazon, for which an earlier component was recently recognized, the Açutuba phase, based on chronological, contextual and formal patterns (Lima et al. 2006). Again, criticism of previous work needs to be tempered by the recognition that field work in the Amazon is complex and expensive: distances are vast and in many cases sites are hidden under the forest or bush.

The earliest ceramics of the New World appear to have been produced in the Amazon (Roosevelt 1995; Roosevelt et al. 1991). The evidence comes from the Pedra Pintada cave, located near the city of Monte Alegre in the lower Amazon, where 8000-year-old ceramics were recovered (Roosevelt 1995). From the Taperinha shell mound, located across the Amazon River from Pedra Pintada, 7000-year-old ceramics were also found (Roosevelt 1995). Beyond the Taperinha shell mound, dates for early ceramics were also obtained from other shell mounds in the lower Amazon, the estuary zone and the Guianese shore: on the Xingu river (Perota and Botelho 1992), the Jauari River (Hilbert 1968), along the Atlantic shore east of the mouth of the Amazon (Simões 1981) and in Western Guiana (Williams 1997: 344). This pattern indicates an association between the early pottery and fluvial and maritime shell mounds of Amazonia (Roosevelt 1995). The problem is that these early ceramic complexes are different from each other: at Pedra Pintada and Taperinha one sees

sand temper and plastic decoration, whereas in the early occupations at the Jauari site (Castalia phase), the lower Xingu and the Atlantic shore (Mina phase), and Western Guiana (Hosororo creek – Mina phase) plastic decoration is absent and shell is the tempering material. If the dates and dated contexts are correct, these differences might indicate two distinct early pottery-making traditions in the Amazon: one, more localized and without further developments, was characterized by the Mina phase ceramics found in both riverine and maritime shell mounds. The other, with an emphasis on plastic decoration, shares common features with other known early complexes in northern South America (Meggers 1997).

The presence of two distinct unrelated early ceramic complexes in the lower Amazon could explain the large formal and technological differences between Mina and Zone-Hachured ceramics. At the Jauari site, a shell mound located on the lower Amazon, Hilbert (1968) found two distinct ceramic assemblages: one of them, belonging to the Castalia phase and composed by shell tempered bowls, can be associated with the Mina phase, whereas the other, belonging to the Jauari phase, has decorative patterns and cauxí (a fresh water sponge) temper, which is characteristic of the Zone-Hachured Tradition. Even if there was a connection between earlier Taperinha and later Mina and Castalia phase ceramics, one is dealing here with at least a 1,500-year-long gap between them. Jauari phase sites have not been dated, but other Zoned-Hachured sites belonging to the Ananatuba phase have. These are sites located on Marajó island, dating back to 1400 BC (Meggers and Danon 1988; Schaan 2001a; Simões 1969). Of course, the gap may result from poor archaeological visibility and lack of fieldwork, but the sudden appearance of Zone-Hachured sites after a long chronological hiatus seems not to be restricted to the lower Amazon and Marajó Island alone.

About the first millennium AD, ceramic-bearing sites seem to appear rather suddenly after long hiatuses in regional sequences (Herrera, Bray and McEwan 1980–81; Hilbert and Hilbert 1980; Lima et al. 2006). The changes visible in the archaeological record from the beginning of the Christian era onwards cannot be associated with any of the ceramic traditions discussed here. Indeed, during most of the first millennium AD one sees throughout the Amazon, at least from the point of view of ceramics, a picture of cultural diversity marked by the simultaneous development of distinct phases or traditions in different places. At Marajó Island for instance, mound building is clearly associated with the Marajoara Phase (Polychrome Tradition), which lasted from the fourth to the thirteenth centuries AD (Meggers and Evans 1957; Roosevelt 1991a; Schaan 2004). Around the same time, in the central Amazon, one sees, from the fifth century AD on, the formation of large sites from the Manacapuru Phase (Incised Rim Tradition) associated with anthropogenic dark earths (ADEs) (Neves et al. 2003; Petersen et al. 2001). These are very fertile soils, highly sought after by current Amazonian farmers, that result from both unintentional and intentional management in the pre-Hispanic past (Glaser et al. 2004; Lehmann et al. 2003; Smith 1980; Woods and McCann 1999). In the central Amazon, ADEs are interpreted as the result of input into the soil of slow burn charcoal and organic waste from household activities in a context of sedentary occupations. They can, therefore, be seen as an indicator of social and demographic change, marking the inception of long-term occupation or of large settlements in the area (Neves and Petersen 2006; Petersen et al. 2001). A similar pattern seems to have occurred with other Incised Rim Tradition sites of the Japurá-Caquetá river, associated with the Japurá phase of Brazil and Colombia, dated from AD 600 to 800 (Herrera, Bray and McEwan 1980–81; Hilbert 1968).

Since the early 1960s there has been a strong debate on the chronology, origins, spread and ethnic meaning of sites with Incised-Rim ceramics. In the initial formulation

these were supposed to derive from older complexes in northern South America (Meggers and Evans 1961), reinforced by the identification, in the lower Magdalena River of Colombia, of sites with ceramics decorated by incision and modeling with dates going back to ca. 4000 BC (Meggers 1997; Oyuela-Caycedo 1995; Oyuela-Caycedo and Bonzani 2005). This hypothesis was criticized by scholars working in different parts of lowland South America, for whom Incised Rim ceramics represented an ancient and local development in the central Amazon (Lathrap and Oliver 1987; Rouse 1985, 1992). The proponents argued that populations expanded from the central Amazon due to demographic growth based on an effective economy combining agriculture and the exploitation of aquatic fauna. Pottery-making groups moved up the Río Negro and down the Orinoco River towards the Caribbean mainland. The resulting archaeological manifestation of this process is seen in the Barrancoid series sites along the lower and middle Orinoco and western Guiana (Lathrap 1964, 1970a, b; Lathrap and Oliver 1987). In this formulation, the Barrancoid series would be a derivation from earlier Incised Rim complexes from the central Amazon. However, the available data do not support this claim. Barrancoid sites in the lower Orinoco are consistently older than Incised Rim sites along the Amazonian floodplain (Barse 2000; Boomert 2000; Gassón 2002; Hilbert 1968; Lima et al. 2006). On the other hand, the similarity among some Barrancoid and Incised Rim ceramics are too strong to be overlooked (Boomert 2000; Evans and Meggers 1968; Hilbert 1968). These include single and double line parallel incisions and modeled decoration around the rims or on labial flanges on the vessels. Maybe the best way to account for this is to accept Lathrap's identification of a connection between Barrancoid and Incised Rim ceramics, but reject his historical hypothesis about its central Amazonian origin, and instead accept Meggers' (1997) hypothesis that early Amazonian and lower Orinocan complexes derive from an initial center of ceramic production in northern Colombia.

Archaeological research in the central Amazon is at last revealing information about historical changes that go beyond ceramic chronology. For example, from the seventh to the eleventh centuries AD, ring-shaped sites associated with ceramics belonging to the Paredão Phase appear (Donatti 2003; Moraes 2006; Neves 2003). Ring villages in lowland South America are ethnographically associated with the Gê speaking peoples from the central Brazilian Plateau (Wüst and Barreto 1998) or with the first Arawak speakers in the Caribbean (Heckenberger 2004; Petersen 1996), but, with the exception of Paredão Phase sites, they are unknown along the Amazonian floodplain (Myers 1973). In the second half of the first millennium AD one also sees the establishment of long lasting regional systems in the central Amazon, based on the presence of Manacapuru ware in contemporary Paredão sites and vice-versa (Donatti 2003; Moraes 2006), and interaction that could have been based on trade and marriage, as described ethnographically among today's Tukanoan Indians of the northwestern Amazonia (Jackson 1983).

If, in the central Amazon, the first millennium AD was characterized, on one hand, by the flourishing of distinct local cultural traditions, and on the other, by a concomitant pattern of population growth and increase in sedentary lifestyles throughout the Amazon, the advent of the second millennium AD marked profound changes that are clearly visible in the archaeological record. Those changes relate to a process that can be interpreted as the emergence of a wide cultural patterning characterized by a replacement of sites of the Incised Rim and other local traditions by sites of the Polychrome Tradition, and also by the gradual expansion of the Polychrome Tradition over a vast area, from the lower Amazon almost to the Andean piedmont in Colombia, Ecuador and Peru. The ethnic and political processes behind the Polychrome expansion are not clear. Brochado

(1984) interpreted the archaeological record as the correlate of agricultural and demographic expansion of Tupi speaking populations over the floodplains of the Amazon and its major tributaries, from a central Amazonian origin center. Meggers (Meggers et al. 1988), on the other hand, has noticed how most of the sites of the Polychrome Tradition tend to be found downstream of the rapids that mark the geological transition from the Amazonian floodplain and the surrounding Guiana and central Brazilian plateaus to the south and north.

Polychrome ceramics share a series of common features that render them distinct. Among them there is the use of painted decoration with motifs in red and/or black over a white slip. Plastic decorative techniques, such as incision, excision, grooving and modeling are also found. In the central and upper Amazon, polychrome vessels tend to be tempered with crushed and burned tree barks (*caraipé*) whereas on Marajó Island grog is the preferred antiplastic. Study of the timing and direction of the polychrome expansion has been a focus of research since the 1950s. Initially it was proposed that it had an Andean or circum-Caribbean origin (Evans and Meggers 1968; Meggers and Evans 1957). As better chronologies became available the hypothesis of an external origin was abandoned and a central Amazonian origin was proposed (Brochado 1984; Lathrap 1970a; Lathrap and Oliver 1987; Oliver 1989). However, the hypothesis of a central Amazonian origin is not supported by the available chronologies for that area (Heckenberger et al. 1998; Hilbert 1968; Neves 2003). Along the main channel of the Amazon, the earlier polychrome sites are related to the Marajora phase, found on Marajó Island and the adjacent mainland, with dates going back to the fifth century AD (Meggers and Danon 1988: 248; Roosevelt 1991a: 313–314; Schaan 2001b: 157), but it is only after AD 750 that dates are more frequent and display a smaller standard deviation (Boomert 2004: 259). This provisional picture may change if earlier dates are confirmed for the upper Madeira basin where polychrome ware, related to the so-called Jamari or Jatuarana Phase, has been (briefly) reported with dates clustering around the beginning of the Christian era (Miller et al. 1992). If these dates are confirmed, we will have to infer a southern Amazonian connection between the upper Madeira and the Marajó Island sites.

By the twelfth and thirteenth centuries AD, most of the floodplains of the Amazon/Solimões were occupied by villages of different size where polychrome ware was produced. The available data show a clear pattern in the dates: older in the upper Madeira, old in Marajó Island and consistently more recent as one moves upstream from the lower to the upper Amazon (Brochado and Lathrap 1982; Evans and Meggers 1968; Heckenberger et al. 1998; Herrera, Bray and McEwan 1980–81; Hilbert 1968; Meggers and Evans 1983; Neves 2003; Neves and Petersen 2006; Schaan 2001b, 2004; Simões 1974; Simões and Kalkmann 1987; Simões and Lopes 1987). Can the polychrome expansion be correlated with a single ethnic or linguistic component as proposed by Lathrap, Brochado and Oliver? There is no single answer, but it appears that by the late 1400s Amazonian social formations were multi-ethnic (Hornborg 2005; Whitehead 1994), similar to what one sees today in such different areas as the upper Xingu (Heckenberger 2005) and the northwest Amazon (Chernela 1983; C. Hugh-Jones 1979; Jackson 1983). In that sense, one would not find a simple correlation between the polychrome expansion and a single linguistic group in late precolonial times. On the other hand, there is mounting evidence across the world that correlates demographic expansion – and the corresponding expansion of material culture and genes – with the advent of agriculture (Bellwood 2001). From this comparative perspective, the match among variables is stronger in cases of expansions into areas previously unoccupied, or in situations where the expanding population brings with it a different

technology enabling the exploitation of new niches as, for instance, agriculture in areas previously occupied by hunter-gatherers (Renfrew 2000).

If the above hypothesis is valid, then a correlation between early polychrome expansion and the expansion of agriculture can be postulated; the earliest dates for polychrome sites come from the upper Madeira basin, the same area that genetic evidence suggests as the center for manioc domestication, *Manihot esculenta* (Olsen and Schaal 1999) as well as the peach palm, *Bactris gasipaes* (Clement 1999). Indeed those initial polychrome sites of the upper Madeira have the earliest ADE sites currently known in the Amazon. If ADEs, as proposed above, are formed in contexts of sedentary occupation, being therefore markers of social and economic change, and also since, together with polychrome ware, the earliest ADEs are found in the upper Madeira, it can be argued that early polychrome expansion is correlated with the expansion of manioc and peach palm farming, by Tupi speaking populations from the upper Madeira basin beginning about 2,500 years ago.

The problem is that, unlike sub-saharan Africa, Europe or Polynesia, there was not one but at least two major waves of linguistic expansion in the Amazon: one of Arawak and the other of Tupi-Guarani families. If the Bellwood-Renfrew hypothesis is correct, one can expect that these different expansions result from the expansion of two different sets of crop complexes. In the same way, the apparently late establishment of sedentary agricultural life across the Amazon indicates that, although food production systems in tropical northern South America area may date from the early Holocene (Gnecco and Aceituno 2004), the transition to a full dependence on agriculture was much later, dating to the beginning of the Christian era (Piperno and Pearsall 1996: 8).

The acceptance of a southwestern origin for the Polychrome Tradition may also help resolve another puzzle of Amazonian archaeology: the fact that there are no signs of polychrome sites in the lower Tapajós, Nhamundá or Trombetas rivers, an area where most of the known sites have ceramics of the Incised-Punctated Tradition. They are highly elaborated ceramics decorated by painting and, most notably, by modeling with zoomorphic and anthropomorphic motifs as well as incision (Gomes 2002, 2005; Nimuendajú 1949, 2004; Roosevelt 1999). The preferred temper is cauxí. These sites are associated with a small but significant corpus of anthropozoomorphic stone statuettes (McEwan, Barreto and Neves 2001; Nimuendajú 2004; Nordenskiöld 1930) and little anthropomorphic or zoomorphic lithic amulets known as *muiraquitãs* that have a wide distribution through the Amazon and northern South America (Boomert 1987). Incised-Punctated sites can be quite large, as it is the case of the site now under the modern city of Santarém (Roosevelt 1999). In the lower Tapajós river, Woods and McCann (1999) found archaeological sites with ADEs surrounded by fairly large areas of anthropogenic soils not associated with cultural remains. These areas, called “terras mulatas” are interpreted as records of former agricultural intensification and soil management in a context of large, sedentary occupations (Woods and McCann 1999).

The area of largest density of sites with incised-punctated ceramics lies between the modern cities of Parintins and Santarém. Within that area, at least two distinct complexes can be identified: to the east are sites with so-called Tapajós ceramics, clustered around Santarém; to the west there are sites with Kondurí ceramics, clustered around the Trombetas river. In the chronology of Meggers and Evans (1961), the Incised-Punctated Tradition was classified as recent, appearing after the Polychrome Tradition. Of course, following the pioneering research by Curt Nimuendajú in the 1920s (Nimuendajú 2004), a surprisingly small amount of fieldwork has been done in the area (Gomes 2002, 2005; Hilbert 1968; Hilbert and Hilbert 1980; Roosevelt 1999; Roosevelt et al. 1991, 1996). However,

the available chronological data indicate that Meggers and Evans' scheme is basically valid on this matter, since the inception of the Incised-Punctated Tradition dates from the end of the first millennium AD, that is, later than the earliest polychrome sites elsewhere in the Amazon (Gomes 2005; Roosevelt 1999). Polychrome sites, as already mentioned, have a wide distribution throughout the Amazonian floodplain, from Marajó island to the foothills of the Andes. The only place along the floodplains where sites of the tradition are not found is precisely the Santarém area. There, incised punctuated sites overlap older occupations from the Pocó phase, dating from 100 BC to AD 200 (Hilbert and Hilbert 1980), and not polychrome sites as it would be expected.

As with many other matters in Amazonian archaeology, there are no clear data on the early history of the Incised-Punctated Tradition. These ceramics share a basic pattern of incised and modeled decoration found in the earliest complexes throughout northern South America, going back to the pottery of San Jacinto 1, Puerto Hormiga and Valdivia (Meggers 1997; Oyuela-Caycedo 1995; Oyuela-Caycedo and Bonzani 2005), the Malambo Tradition of northern Colombia (Angulo 1981), the Incised Rim Tradition of the Amazon and the Barrancoid series of the Orinoco River (Gasson 2002). They do not represent a rupture with these earlier complexes. The closest similarities with the Incised-Punctated Tradition are found with the ceramics of the Arauquinoid series of the middle Orinoco (Zucchi 1985), coastal Surinam and coastal French Guiana (Rostain and Versteeg 2004: 239). In the middle Orinoco, cauxí-tempered ceramics of the Araquinoid series date from AD 400 to 1400 (Zucchi 1985). In the Guianese coastal plain, the dates are a little later, starting around AD 600 but also continuing until the arrival of the Europeans (Rostain and Versteeg 2004).

The Santarém area, the middle Orinoco and the coastal plain of Surinam and French Guiana lie roughly equidistant from the Guiana plateau, a region predominantly occupied by Carib-speaking groups today. This has led authors to suggest that both the Arauquinoid series and the Incised-Punctated Tradition are local manifestations, from the late first millennium AD onwards, of a radiation of Caribs towards the Guyanese coast, the middle Orinoco and the lower Amazon (Brochado and Lathrap 1982; Zucchi 1985). Along the Amazonian floodplain, Incised-Punctated ceramics are restricted to a radius of roughly 300km with its center at Santarém, and being surrounded both upstream and downstream by occupations related to the Polychrome Tradition. To the south of Santarém, sites of the Incised-Punctated Tradition are not known. This, together with the alleged similarities with the Arauquinoid series of the middle Orinoco River and Guianas, matches the hypothesis of a northern origin in the Guyana plateau correlated with the Carib expansion. As with other parts of the Amazonian floodplain, the Santarém area was densely occupied at the onset of European colonization. The relative wealth of reports about this area and the Tapajó Indians who occupied it indicate some measure of political centralization, including roads, settlement hierarchy, labor specialization and the presence of a nobility (Nimuendajú 1949, 2004; Roosevelt 1999). Signs of political centralization are, however, absent in the Arauquinoid sites of the Guianese coastal plain, where archaeological sites are small and monumental architecture is lacking (Rostain and Versteeg 2004: 239). In the middle Orinoco, on the other hand, between AD 600 and 800 there was an increase in the size and density of archaeological sites of the Araquinoid series probably related to the adoption of maize cultivation (Zucchi 1985: 33). Maize agriculture has also been described by early European chroniclers in the Santarém area. Although there are no direct paleobotanical data to confirm it, research done with terras pretas in the Santarém area has uncovered large extensions of anthropogenic soils, in one case with 120ha, which could

have been used for agriculture (Woods and McCann 1999: 12). As with other areas, more research is needed with Incised-Punctated sites in order to determine the extent to which the archaeological record matches early colonial reports.

The Tapajó Indians, settled along the major Amazonian floodplain, were easily accessible to Europeans traveling up and down the river, but in more remote areas the impact of European colonization was strong as well. In the upper Xingu basin, more than 1,000 km south of the Amazon floodplain, the archaeological record shows signs of population decrease and settlement abandonment starting in the sixteenth century AD, and most likely related to the indirect spread of infectious diseases (Heckenberger 2005: 74). These declines were preceded by several centuries of population growth and settlement accretion whose signs became visible after ca. AD 800 (Heckenberger 2005: 87–88, 103). Between AD 1250 and 1350 large earthworks were built, including ditches surrounding villages, sometimes paired settlements, and linear mounds placed at the margins of plazas or alongside causeways (Heckenberger 2005: 78). From these features it can be inferred that there was a degree of social complexity within the communities.

At the mouth of the Amazon, the establishment of European outposts such as Belém and Cayenne also had a strong impact in what seems to have been one of the most culturally diverse areas of pre-colonial Amazonia. This diversity is attested by the flourishing of several distinctive, although correlated, ceramic complexes in an area ranging from Marajó Island towards what is currently eastern Surinam beginning in the fifth century AD (Guapindaia 2001). Associated with these complexes one finds cave burials in zoomorphic and anthropomorphic urns in the Maracá area (Guapindaia 2001), artificial burial chambers, stone alignments and also cave burials related to Aristé pottery (Nimuendajú 2004; Meggers and Evans 1957; Chapter 16 in this volume). The people who made these ceramics were probably the ancestors of the Arawak-speaking Palikur and Lokono Indians, who currently live at the edge of the coastal plain in Surinam, French Guiana and the northern Amapá state in Brazil.

CHIEFDOMS IN THE AMAZONIAN FLOODPLAIN

There has been a heated debate for years over the existence of chiefdoms in pre-Columbian Amazonia (Carneiro 1995; Drennan 1995; Heckenberger 2003; Lathrap 1968a, 1970a; Meggers 1993–1995; Neves 1999; Roosevelt 1980, 1991b, 1999; Stahl 2002; Viveiros de Castro 1996; Whitehead 1994). If they were indeed chiefdoms, how was power financed and transmitted? Where were the political boundaries among these polities and how did they change over time? What was the role of warfare, long-distance trade and labor exploitation in the constitution of these social formations? Finally, how were hierarchies materialized in groups of objects and monumental architecture? Surveying the academic exchange, it is fair to state that the debate has been based on scant archaeological data, a few sixteenth and seventeenth century reports, and a lot of speculation. This is no one's fault for the underdevelopment of Amazonian archaeology leaves room for it. New data from several areas where intensive research has been conducted during the last ten years, some of it yet not fully published, provides a basis for the construction of a model that moves away from typological discussion in terms of old evolutionary stages.

This new scenario is based on the premise that late pre-colonial societies of the Amazonian floodplain were cyclical, with alternating periods of political centralization and

decentralization, the latter inferred from events of settlement abandonment and regional population decline. For instance, in the early sixteenth century AD, there was, in the Santarém area, what seems to have been a highly centralized chiefdom based on long-distance trade (Nimuendajú 2004), intensive agriculture (Woods and McCann 1999), and the production and circulation of sophisticated pottery (Gomes 2002) centered around a quasi-urban settlement (Roosevelt 1999). Something similar seems to have happened in the upper Xingu as well, far away from the main Amazonian floodplain (Heckenberger 2005).

In other areas, such as Marajó Island, the peak of political centralization, represented by mound building, happened earlier, around the eleventh and twelfth centuries AD. By the early sixteenth century AD, the social formation that generated the mounds had already collapsed.

On the other hand, along the Guianese shore evidence of political centralization that might be compatible with chiefly social formations is lacking: settlements were not large, they were occupied for short intervals and there is no sign of settlement hierarchy or monumental architecture (Boomert 2004; Rostain and Versteeg 2004).

A closer look at the archaeology of the central Amazon may help to better understand these cycling processes. Research verifies that the peak of population density and human occupation happened from the fifth to the eleventh centuries AD (Neves 2005; Neves and Petersen 2006). During this time, large and dense sedentary occupations generated the anthropogenic dark soils (ADEs) associated with artificial mounds. After this interval archaeological sites get smaller, with good evidence for short occupation spans. This process of change, also marked by the constructions of defensive structures, such as moats around sites, is probably associated with the beginning of Polychrome Tradition occupations in the area (Neves 2006). Interestingly, some of the abandoned sites are located in very productive settings, such as high bluffs overlooking the fertile Amazonian floodplain, but they were only scantily, if ever, reoccupied after the eleventh century AD (Neves and Petersen 2006).

FINAL THOUGHTS

Clearly, as more detailed regional research is accumulated for the Amazon a more diversified picture emerges. As elsewhere in the world, pre-colonial Amazonian social formations had their own particular historical trajectories. The challenge for the future of Amazonian prehistory is to focus on these particular histories without losing sight of the need for comparative analyses with other areas of the world.

ACKNOWLEDGMENTS This paper builds upon many years of archaeological research in Amazonas state, Brazil. I would like to thank my colleagues of the Central Amazon Project for their friendship and the stimulating research atmosphere. Manuel Arroyo-Kalin, Helena Pinto Lima and Claide de Paula Moraes read and commented on earlier drafts of this chapter, although they probably will not agree with the final result. Finally I thank Carlos Augusto “the Brick” da Silva, Mike Heckenberger and the late Jim Petersen, cherished friends whose scientific curiosity and knowledge will always be a source of inspiration.

REFERENCES

- Aalto, R., L. Maurice-Bourgoin, T. Dunne, D. Montgomery, C. Nittrouer and J. Guyot, 2003, Episodic sediment accumulation on Amazonian flood plains influenced by El Niño/Southern Oscillation. *Nature* 425: 493–497.
- Absy, M. L. and T. van der Hammen, 1976, Some palaeoecological data from Rondonia, southern part of the Amazon Basin. *Acta Amazonica* 6 (3): 293–299.
- Angulo, Carlos, 1981, *La Tradición Malambo*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.
- Baker, P. et al., 2001, The history of South American tropical precipitation for the last 25,000 years. *Science* 291: 640–643.
- Balée, William A., 2000, Antiquity of traditional ethnobiological knowledge in Amazonia: the Tupí-Guaraní family and time. *Ethnohistory* 47 (2): 399–422.
- and D. Moore, 1994, Language, culture, and environment: Tupí-Guaraní plant names over time. In *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives*, edited by Anna C. Roosevelt, pp. 363–380. University of Arizona Press, Tucson.
- Barbosa Rodrigues, João, 1892, Antiguidades do Amazonas – A Necrópole de Mirakanguera, *Vellozia – Contribuições do Museu Botânico do Amazonas*, vol. II: 1–40.
- Barse, William, 2000, Ronquín, AMS Dates, and the middle Orinoco sequence. *Interciencia* 25 (7): 337–341.
- , 2003, Holocene climate and human occupation in the Orinoco. In *Under the Canopy: The Archaeology of Tropical Rain Forests*, edited by Julio Mercader, pp. 249–270. Rutgers University Press, New Brunswick.
- Behling, Hermann and Henry Hooghiemstra, 2000, Holocene Amazon rainforest-savanna dynamics and climatic implications: high-resolution pollen record from Laguna Loma Linda in eastern Colombia. *Journal of Quaternary Science* 15 (7): 687–695.
- and M. Lima da Costa, 2000, Holocene environmental changes from the Río Curuá records in the Caxiuana region, eastern Amazon basin. *Quaternary Research* 53: 369–377.
- , J. C. Berrío and H. Hooghiemstra, 1999, Late Quaternary pollen records from the middle Caquetá river basin in the central Colombian Amazon. *Palaeogeography, Palaeoclimatology, Palaeoecology* 146: 193–213.
- , G. Keim, G. Irion, and J. Nunes de Mello, 2001, Holocene environmental changes in the central Amazon basin inferred from Lago Calado (Brazil). *Palaeogeography, Palaeoclimatology, Palaeoecology* 173: 87–101.
- Bellwood, Peter, 2001, Early agriculturalist population diasporas? Farming, languages and genes. *Annual Review of Anthropology* 30: 181–207.
- Berrío, J. C., 2002, Synthesis of the paleoenvironmental changes in the Colombian lowlands. In *Late Glacial and Holocene Vegetation and Climatic Change in Lowland Colombia*, organized by J. C. Berrío, pp. 219–231. University of Amsterdam, Amsterdam.
- Boomert, Arie, 1987, Gifts of the Amazons: “green stone” pendants and beads as items of ceremonial exchange in Amazonia and the Caribbean. *Antropológica* 67: 3–54.
- , 2000, *Trinidad, Tobago and the Lower Orinoco Interaction Sphere*. Cairi Publications, Alkmaar.
- , 2004, Koriabo and the Polychrome Tradition: the late prehistoric era between the Orinoco and Amazon mouths. In *Late Ceramic Age Societies in the Eastern Caribbean*, edited by A. Delpuech and C. Hoffman, pp. 251–266. Archaeopress/BAR International Series 1273, Paris Monographs in American Archaeology, 14. Oxford.
- Brochado, Jose, 1984, An Ecological Model of the Spread of Pottery and Agriculture into Eastern South America. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- , 1989, A expansão dos tupi e da cerâmica da tradição policrômica amazônica. *Dédalo* 9 (17–18): 41–47.
- and Donald W. Lathrap, 1982, Chronologies in the New World: Amazonia. Unpublished manuscript edited by José R. Oliver (1999).
- Burbridge, R., F. Mayle and T. Killeen, 2004, Fifty-thousand-year vegetation and climate history of Noel Kempff Mercado National Park, Bolivian Amazon. *Quaternary Research* 61: 215–230.
- Carneiro, Robert, 1995, The history of ecological interpretations of Amazonia: does Roosevelt have it right? In *Indigenous Peoples and the Future of Amazonia: An Ecological Anthropology of an Endangered World*, edited by Leslie Sponsel, pp. 45–70. University of Arizona Press, Tucson.

- Cavelier, I., C. Rodriguez, L. Herrera, G. Morcote and S. Mora, 1995, No solo de caza vive el hombre: ocupación del bosque Amazónico, Holoceno temprano. In *Ambito y Ocupaciones Tempranas de la America Tropical*, pp. 27–44. Fundación Erigaie – Instituto Colombiano de Antropología, Bogotá.
- Chernela, Janet, 1993, *The Wanano Indians of the Brazilian Amazon: A Sense of Space*. University of Texas Press, Austin.
- Clement, C., 1999, 1492 and the loss of Amazonian crop genetic resources I: the relation between domestication and human population decline. *Economic Botany* 53 (2): 188–202.
- Colinvaux, P., 1987, Amazon diversity in light of the paleoecological record. *Quaternary Science Reviews* 6: 93–114.
- , 2000, Paradigm lost: Pleistocene environments of the Amazon Basin. Continued Forest Cover in Perpetual Flux, Part 2. *The Review of Archaeology* 22 (1): 20–31.
- , P. De Oliveira and Mark Bush, 2000, Amazonian and neotropical plant communities on glacial time-scales: the failure of the aridity and refuge hypotheses. *Quaternary Science Reviews*: 141–169.
- Costa, F. W. S., 2002, Análise das Indústrias Líticas da Área de Confluência dos Rios Negro e Solimões. Dissertação de Mestrado apresentada ao Programa de Pós-Graduação em Arqueologia Brasileira do Museu de Arqueologia e Etnologia da Faculdade de Filosofia, Letras e Ciências Humanas da Universidade de São Paulo.
- Denevan, William, 1966, *The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia*. Ibero-Americana, 48. University of California Press, Berkeley.
- , 1992, Stone versus metal axes: the ambiguity of shifting cultivation in the prehistoric Amazonia. *Journal of the Steward Anthropological Society* 20: 153–165.
- Drennan, Robert, 1995, Chiefdoms in northern South America. *Journal of World Prehistory* 9 (3): 301–340.
- Erickson, Clark L., 2000, An artificial landscape-scale fishery in the Bolivian Amazon. *Nature* 408: 190–193.
- , 2003, Historical ecology and future explorations. In *Amazonian Dark Earths: Origins, Properties, Management*, edited by J. Lehmann, D. Kern, B. Glaser, and W. I. Woods, pp. 455–500. Kluwer Academic Publishers, Dordrecht.
- Donatti, P., 2003, A arqueologia da margem norte do Lago Grande, Iranduba, Amazonas. Unpublished M.A. thesis. Programa de Pós-Graduação em Arqueologia, Museu de Arqueologia e Etnologia da Universidade de São Paulo.
- Evans, Clifford and Betty J. Meggers, 1968, *Archaeological Investigations on the Río Napo, Eastern Ecuador*. Smithsonian Contributions to Anthropology, vol. 6. Smithsonian Institution Press, Washington, D.C.
- Freitas, H., L. Pessenda, R. Aravena, S. Gouveia, A. Ribeiro and R. Boulet, 2001, Late Quaternary vegetation dynamics in the southern Amazon basin inferred from carbon isotopes in soil organic matter. *Quaternary Research* 55: 39–42.
- Gassón, Rafael A., 2000, Quirípas and mostacillas: the evolution of shell beads as a medium of exchange in northern South America. *Ethnohistory* 47 (3–4): 581–609.
- , 2002, Orinoquia: the archaeology of the Orinoco river basin. *Journal of World Prehistory* 16 (3): 237–311.
- Glaser, B. and W. I. Woods (eds.), 2004, *Amazonian Dark Earths: Explorations in Space and Time*. Springer Verlag, Berlin.
- Gomes, D., 2002, *A Cerâmica Arqueológica da Amazônia: Vasilhas da Coleção Tapajônica MAE-USP*. Imprensa Oficial SP/Editora da Universidade de São Paulo, São Paulo.
- , 2005, Análise dos Padrões de Organização Comunitária no Baixo Tapajós: O Desenvolvimento do Formativo na Área de Santarém, PA. Unpublished Ph.D. dissertation. Programa de Pós-Graduação em Arqueologia, Museu de Arqueologia e Etnologia, Universidade de São Paulo.
- Gnecco, Cristóbal and Javier Aceituno, 2004, Poblamiento temprano y espacios antropogénicos en el norte de Suramérica. *Complutum* 15: 151–164.
- and Santiago Mora, 1997, Late Pleistocene/early Holocene tropical forest occupations at San Isidro and Peña Roja, Colombia. *Antiquity* 71: 683–690.
- Haffer, J., 2001, Hypotheses to explain the origin of species in Amazonia. In *Diversidade Biológica e Cultural da Amazônia*, edited by I. C. Vieira, et al., pp. 45–118. Museu Paraense Emílio Goeldi, Belém.
- Herrera, Leonor, Warwick Bray and Colin McEwan, 1980–81, Datos sobre la arqueología de Araracuara (Comisaría del Amazonas Colombia). *Revista Colombiana de Antropología* XXIII: 184–251.
- Heckenberger, Michael J., 2002, Rethinking the Arawakan diaspora: hierarchy, regionality, and the Amazonian Formative. In *Comparative Arawakan Histories: Rethinking Language and Culture Areas in the Amazon*, edited by Jonathan Hill and Fernando Santos-Granero, pp. 99–122. University of Illinois Press, Urbana.
- , 2003, The enigma of the great cities: body and state in Amazonia. *Tipiti* 1(1): 27–58.

- _____, 2005, *The Ecology of Power: Culture, Place, and Personhood in the Southern Amazon, AD 1000–2000*. Routledge, New York.
- _____, Eduardo G. Neves, and James B. Petersen, 1998, De onde surgem os modelos? As origens e expansões Tupi na Amazônia Central. *Revista de Antropologia* (USP) 41 (1): 69–96.
- _____, James B. Petersen and Eduardo G. Neves, 1999, Village permanence in Amazonia: two archaeological examples from Brazil. *Latin American Antiquity* 10 (4): 353–376.
- _____, A. Kuikuro, U. T. Kuikuro, J. C. Russell, M. Schmidt, C. Fausto, and B. Franchetto, 2003, Amazonia 1492: pristine forest or cultural parkland? *Science* 301:1710–1714.
- Hilbert, P., 1968, *Archäologische Untersuchungen am Mittlern Amazonas*. Dietrich Reimer Verlag, Berlin.
- _____, and K. Hilbert, 1980, Resultados preliminares de pesquisa arqueológica nos rios Nhamundá e Trombetas, baixo Amazonas. *Boletim do Museu Paraense Emilio Goeldi*, NS: 75.
- Hornborg, A., 2005, Ethnogenesis, regional integration, and ecology in prehistoric Amazonia: towards a systemic perspective. *Current Anthropology* 46 (4): 589–620.
- Hugh-Jones, Christine, 1979, *From the Milk River: Spatial and Temporal Processes in Northwest Amazonia*. Cambridge University Press, Cambridge.
- Hugh-Jones, Stephen, 1995, Inside-out and back-to-front: the androgynous house in northwest Amazon. In *About the House: Lévi-Strauss and Beyond*, edited by Janet Carsten and Stephen Hugh-Jones, pp. 226–252. Cambridge University Press, Cambridge.
- Jackson, Jean, 1983, *The Fish People: Linguistic Exogamy and Tukanoan Identity in Northwest Amazonia*. Cambridge University Press, Cambridge.
- Kern, D. et al., 2003, Distribution of Amazonian Dark Earths in the Brazilian Amazon. In *Amazonian Dark Earths: Origins, Properties, Management*, edited by J. Lehmann, D. Kern, B. Glaser, and W. I. Woods, pp. 51–76. Kluwer Academic Publishers, Dordrecht.
- Lathrap, Donald W., 1964, An alternative seriation of the Mabaruma phase, northwestern British Guiana. *American Antiquity* 29 (3): 353–359.
- _____, 1968a, Aboriginal occupation and changes in river channel on the central Ucayali, Peru. *American Antiquity* 33 (1): 62–79.
- _____, 1968b, The “hunting” economies of the tropical forest zone of South America. In *Man the Hunter*, edited by Richard Lee and Irven DeVore, pp. 23–29. Aldine, Chicago.
- _____, 1970a, *The Upper Amazon*. Thames and Hudson, London.
- _____, 1970b, Review of Archäologische Untersuchungen am Mittlern Amazonas, by P. Hilbert. *American Antiquity* 35 (4): 499–501.
- _____, 1977, Our Father the Cayman, Our Mother the Gourd: Spinden revisited or a unitary model for the emergence of agriculture in the New World. In *Origins of Agriculture*, edited by Charles A. Reed, pp. 713–751. Mouton, The Hague.
- _____, and José R. Oliver, 1987, Agüerito: el complejo policromo mas antiguo de América en la confluencia del Apure y el Orinoco (Venezuela). *Interciencia* 12: 274–289.
- Lehmann, Johannes, Dirse C. Kern, Bruno Glaser, and William I. Woods (eds.), 2003, *Amazonian Dark Earths: Origin, Properties, Management*. Kluwer, Dordrecht.
- Lima, H. P., E. G. Neves and J. B. Petersen, 2006, A fase Açutuba: um novo complexo cerâmico na Amazônia Central. *Arqueologia Suramericana/Arqueologia Sul-Americana* 2 (1): 26–52.
- Lowie, Robert, 1948, The tropical forests: an introduction. In *Handbook of South American Indians*, vol. 3, edited by Julian H. Steward, pp. 1–56. Bulletin 143, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- McEwan, Colin, Christiana Barreto, and Eduardo G. Neves (eds.), 2001, *Unknown Amazon: Culture in Nature in Ancient Brazil*. British Museum Press, London.
- Magalhães, M., 1994, *Arqueologia de Carajás: a presença pré-histórica do homem na Amazônia*. Companhia Vale do Rio Doce, Rio de Janeiro.
- Maslin, M. et al., 2000, Paleoreconstruction of the Amazon River freshwater and sediment discharge using sediments recovered at Site 942 on the Amazon Fan. *Journal of Quaternary Science* 15 (4): 419–434.
- Meggers, Betty J., 1977, Vegetational fluctuation and prehistoric cultural adaptations in Amazonia: some tentative correlations. *World Archaeology* 8 (3): 287–303.
- _____, 1979, Climatic oscillation as a factor in the prehistory of Amazonia. *American Antiquity* 44 (2): 252–266.
- _____, 1982, Archaeological and ethnographic evidence compatible with the model of forest fragmentation. In *Biological Diversification in the Tropics*, edited by Ghilleen Prance, pp. 483–496. Columbia University Press, New York.

- _____, 1993–95, Amazonia on the eve of European contact: ethnohistorical, ecological, and anthropological perspectives. *Revista de Arqueologia Americana* 8: 91–115.
- _____, 1996, *Amazonia: Man and Culture in a Counterfeit Paradise* (2nd ed.). Aldine, Chicago.
- _____, 1997, La cerámica temprana en América del Sur: invención independiente o difusión? *Revista de Arqueologia Americana* 13: 7–40.
- _____ and J. Danon, 1988, Identification and implications of a hiatus in the archaeological sequence on Marajó Island, Brazil. *Journal of the Washington Academy of Sciences* 78 (3): 245–253.
- _____ and Clifford Evans, 1957, *Archaeological Investigations at the Mouth of the Amazon*. Bulletin 167, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____, 1961, An experimental formulation of horizon styles in the tropical forest of South America. In *Essays in Pre-Columbian Art and Archaeology*, edited by Samuel K. Lothrop, pp. 372–388. Harvard University Press, Cambridge.
- _____, 1983, Lowland South America and the Antilles. In *Ancient South Americans*, edited by Justin Jennings, pp. 287–335. W. H. Freeman, San Francisco.
- _____ and E. Miller, 2003, Hunter-gatherers in Amazonia during the Pleistocene-Holocene transition. In *Under the Canopy: The Archaeology of Tropical Rain Forests*, edited by Julio Mercader, pp. 291–316. Rutgers University Press, New Brunswick.
- _____, O. Dias, E. Miller and C. Perota, 1988, Implications of archaeological distributions in Amazonia. In *Proceedings of a Workshop on Neotropical Distribution Patterns*, edited by P. Vanzolini and W. Heyer, pp. 275–294. Academia Brasileira de Ciências, Rio de Janeiro.
- Miller, Eurico, et al., 1992, *Arqueologia nos Empreendimentos Hidrelétricos da Eletronorte. Resultados Preliminares*. Eletronorte, Brasília.
- Mora, Santiago, 2003, *Early Inhabitants of the Amazonian Tropical Rain Forest: A Study of Human and Environmental Dynamics*. Latin American Archaeology Reports, No. 3. University of Pittsburgh, Pittsburgh.
- _____, L. F. Herrera, I. Cavelier and C. Rodríguez, 1991, *Cultivars, Anthropic Soils and Stability: A Preliminary Report of Archaeological Research in Araracuara, Colombian Amazon*. Latin American Archaeology Reports, No. 2. University of Pittsburgh, Pittsburgh.
- Moraes C., 2006, *Levantamento Arqueológico das Áreas de Entorno do Lago do Limão, Iranduba, Amazonas*. Unpublished M.A. thesis. Museu de Arqueologia e Etnologia, Universidade de São Paulo.
- Morales, Daniel, 1998, Chambira: una cultura de sabana árida en la Amazonía peruana. *Investigaciones Sociales* 2 (2): 61–75.
- Moran, Emilio F., 1993, *Through Amazonian Eyes: The Human Ecology of Amazonian Populations*. University of Iowa Press, Iowa City.
- Myers, Thomas, 1973, Toward the reconstruction of prehistoric community patterns in the Amazon basin. In *Variation in Anthropology* edited by Donald W. Lathrap and Jody Douglas, pp. 233–252. Illinois Archaeological Survey, Urbana.
- Neves, Eduardo G., 1995, Village fissioning in Amazonia: a critique of monocausal determinism. *Revista do Museu de Arqueologia e Etnologia da Universidade de São Paulo* 5: 195–209.
- _____, 1998, Twenty years of Amazonian archaeology in Brazil. *Antiquity* 72: 625–632.
- _____, 1999, Changing perspectives in Amazonian archaeology. In *Archaeology in Latin America*, edited by Gustavo Politis and Benjamin Alberti, pp. 216–243. Routledge, London.
- _____, 2001, Indigenous historical trajectories in the upper Rio Negro basin. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto, and Eduardo G. Neves, pp. 266–285. British Museum Press, London.
- _____, 2003, *Levantamento arqueológico da área de confluência dos rios Negro e Solimões, Estado do Amazonas: Continuidade das escavações, análise da composição química e montagem de um sistema de informações geográficas*. Relatório enviado à Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)
- _____, 2005, O lugar dos lugares: escala e intensidade das modificações paisagísticas na Amazônia central pré-colonial em comparação com a Amazônia contemporânea. *Ciência e Ambiente* 31: 79–91.
- _____, 2006, Warfare in precolonial Amazonia: when Carneiro meets Clastres. In *Warfare in Cultural Context: Practice Theory and the Archaeology of War*, edited by Axel Nielsen and William Walker. University of Arizona Press, Tucson.
- _____ and James B. Petersen, 2006, Political economy and pre-Columbian landscape transformations in Central Amazonia. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark Erickson, pp. 279–309. Columbia University Press, New York.

- _____, J. B. Petersen, R. N. Bartone, and C. A. da Silva. 2003. Historical and socio-cultural origins of Amazonian dark earths. In *Amazonian Dark Earths: Origins, Properties, Management*, edited by J. Lehmann, D. Kern, B. Glaser and W. I. Woods, pp. 29–50. Kluwer Academic Publishers, Dordrecht.
- _____, J. B. Petersen, R. N. Bartone, and M. J. Heckenberger, 2004, The timing of terra preta formation in the central Amazon: archaeological data from three sites. In *Amazonian Dark Earths: Explorations in Space and Time*, edited by B. Glaser and W. I. Woods, pp. 125–134. Springer Verlag, Berlin.
- Nimuendajú, Curt, 2004, *In Pursuit of a Past Amazon: Archaeological Researches in the Brazilian Guyana and in the Amazon Region* (A posthumous work compiled and translated by Stig Rydén and Per Stenborg), edited by Per Stenborg. Etnologiska Studier 45, Göteborg.
- Nordenskiöld, Erland, 1930, *L'Archéologie du Bassin de l'Amazone*. Ars Americana, vol. 1, Paris.
- Oliver, José, 1989, The Archaeological, linguistic and ethnohistorical evidence for the expansion of Arawakan into Northwestern Venezuela and Northeastern Colombia. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana.
- _____, 2001, The archaeology of forest foraging and agricultural production in Amazonia. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto and Eduardo G. Neves, pp. 50–85. British Museum Press, London.
- Olsen, K. and B. Schaal, 1999, Evidence on the origin of cassava: phylogeography of *Manihot esculenta*. *Proceedings of the National Academy of Sciences* 96: 5586–5591.
- Oyuela-Caycedo, Augusto, 1995, Rock versus clay: the evolution of pottery technology in the case of San Jacinto 1, Colombia. In *The Emergence of Pottery: Technology and Innovation in Ancient Societies*, edited by William K. Barnett and John Hoopes, pp. 133–144. Smithsonian Institution Press, Washington, D.C.
- _____, and R. Bonzani, 2005, *San Jacinto 1: A Historical Ecological Approach to an Archaic Site in Colombia*. University of Alabama Press, Tuscaloosa.
- Pärssinen, M., A. Ranzi, S. Saunaluoma and A. Siiriäinen, 2003, Geometrically patterned ancient earthworks in the Rio Branco region of Acre, Brazil: new evidence of ancient chiefdom formations in Amazonian interfluvial terra firme environment. In *Western Amazonia - Amazonia Ocidental. Multidisciplinary Studies on Ancient Expansionistic Movements, Fortifications and Sedentary Life*, edited by M. Pärssinen and A. Korpisaari, pp. 97–133. Renvall Institute Publications 14. University of Helsinki, Helsinki.
- Papavero, N., D. Teixeira, W. Overal and J. R. Pujol-Luz, 2002, A “Relación” de Frei Gaspar de Carvajal. In *O Novo Éden: A Fauna da Amazônia Brasileira nos Relatos de Viajantes e Cronistas desde a Descoberta do Rio Amazonas por Pinzón (1500) até o Tratado de Santo Idelfonso, com transcrição dos principais textos*, pp. 20–4. Museu Paraense Emílio Goeldi, Belém.
- Perota, C. and W. Botelho, 1992, “Sambaquis” de Guará, variations climatiques pendant l’Holocene, In *Évolution des littoraux de Guyane et de la Zone Caribé Méridionale pendant de Quaternaire*, edited by M. T. Prost, pp. 379–395. Editions de l’ORSTOM, Paris.
- Petersen, James B., 1996, The archaeology of Trants, Montserrat, Part 3. Chronological and settlement data. *Annals of the Carnegie Museum* 65: 323–361.
- _____, Eduardo G. Neves and Michael J. Heckenberger, 2001, Gift from the past: terra preta and prehistoric Amerindian occupation in Amazonia. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto and Eduardo G. Neves, pp. 86–105. British Museum Press, London.
- Piperno, Dolores and Peter Becker, 1996, Vegetational history of a site in the central Amazon basin derived from phytolith and charcoal records from natural soils. *Quaternary Research* 45: 202–209.
- _____, and Deborah Pearsall, 1996, Background of tropical agricultural origins. In *Tropical Paleoethnobotany*, edited by Deborah Pearsall and Dolores Piperno, pp. 1–38. Academic Press, New York.
- Politis, Gustavo, 1996, *Nukak*. Instituto Amazónico de Investigaciones Científicas – SINCHI, Bogotá.
- Porro, A., 1993, *As Crônicas do Rio Amazonas. Notas etno-históricas sobre as antigas populações indígenas da Amazônia*. Vozes, Petrópolis.
- _____, 1994, Social organization and political power in the Amazon floodplain: the ethnohistorical sources. In *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives*, edited by Anna C. Roosevelt, pp. 79–94. University of Arizona Press, Tucson.
- Renfrew, Colin, 2000, At the edge of knowability: towards a prehistory of languages. *Cambridge Archaeological Journal* 10 (1): 7–34.
- Roosevelt, Anna C., 1980, *Parmana: Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco*. Academic Press, New York.
- _____, 1991a, *Moundbuilders of the Amazon: Geophysical Archaeology on Marajó Island, Brazil*. Academic Press, San Diego.

- _____, 1991b, Determinismo ecológico na interpretação do desenvolvimento social indígena da Amazônia. In *Origens, Adaptações e Diversidade Biológica do Homem Nativo da Amazônia*, organized by Walter Neves, pp. 103–141. Museu Paraense Emílio Goeldi, Belém.
- _____, 1994, Amazonian anthropology: strategy for a new synthesis. In *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives*, edited by Anna C. Roosevelt, pp. 1–29. University of Arizona Press, Tucson.
- _____, 1995, Early pottery in the Amazon. Twenty years of scholarly obscurity. In *The Emergence of Pottery. Technology and Innovation in Ancient Societies*, edited by William K. Barnett and John Hoopes, pp. 115–131. Smithsonian Institution Press, Washington, D.C.
- _____, 1996, Paleoindian cave dwellers in the Amazon: the peopling of the Americas. *Science* 272: 373–384.
- _____, et al., 2002, The migrations and adaptations of the first Americans: Clovis and pre-Clovis viewed from South America. In *The First Americans, The Pleistocene Colonization of the New World*, edited by N. Jablonski, pp. 159–235. Memoirs of the California Academy of Sciences, Number 27, San Francisco.
- _____, et al., 1991, Eighth millennium pottery from a prehistoric shell midden in the Brazilian Amazon. *Science* 254: 1621–1624.
- Rostain, Stéphen, 1991, *Les Champs Surleves Amerindiens de la Guyane*. Centre ORSTOM de Cayenne, Cayenne.
- _____, 1999, Occupations humaines et fonction domestique des monticules préhistoriques d'Amazonie équatorien. *Société Suisse des Américanistes*, Bulletin 63: 71–95.
- _____, and Aad Versteeg, 2004, The Araquinoid Tradition in the Guianas. In *Late Ceramic Age Societies in the Eastern Caribbean*, edited by A. Delpuech and C. Hoffman, pp. 233–250. Archaeopress/BAR International Series 1273, Paris Monographs in American Archaeology 14. Oxford.
- Rouse, Irving, 1985, Arawakan phylogeny, Caribbean chronology, and their implications for the study of population movement. *Antropologica* 63–64: 9–21.
- _____, 1992, *The Tainos: Rise and Decline of the People Who Greeted Columbus*. Yale University Press, New Haven.
- Sauer, Carl O., 1969, *Seeds, Spades, Hearths and Herds: The Domestication of Animals and Foodstuffs*. The MIT Press, Cambridge, MA.
- Schaan, Denise, 2001a, Into the labyrinths of Marajoara pottery: status and cultural identity in an Amazonian complex society. In *The Unknown Amazon. Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto and Eduardo G. Neves, pp. 108–133. British Museum Press, London.
- _____, 2001b, Os Dados Inéditos do Projeto Marajó. *Revista do Museu de Arqueologia e Etnologia da Universidade de São Paulo* 11: 141–164.
- _____, 2004, The Camutins Chiefdom. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh, Pittsburgh.
- _____, 2005, Uma janela para a história pré-colonial da Amazônia: olhando além – e apesar – das fases e tradições. Paper presented at the 13th meeting of the Brazilian Archaeological Society.
- Simões, M., 1969, The Castanheira site: new evidence on the antiquity and history of the Ananatuba phase. *American Antiquity* 34 (4): 402–410.
- _____, 1974, Contribuição à arqueologia dos arredores do baixo rio Negro. *Programa Nacional de Pesquisas Arqueológicas* 5: 165–200. Publicações Avulsas do Museu Paraense Emílio Goeldi, No. 26.
- _____, 1981, Coletores-pescadores ceramistas do litoral do Salgado (Pará). *Boletim do Museu Paraense Emílio Goeldi*, Nova Série, No. 78: 1–31.
- _____, and A. Kalkmann, 1987, Pesquisas arqueológicas no médio Rio Negro (Amazonas). *Revista de Arqueologia* 4 (1): 83–116.
- _____, and D. Lopes, 1987, Pesquisas arqueológicas no baixo/médio Rio Madeira (Amazonas). *Revista de Arqueologia* 4 (1): 117–134.
- Smith, N., 1980, Anthrosols and human carrying capacity in Amazonia. *Annals of the Association of American Geographers* 70 (4): 553–566.
- Stahl, Peter W., 2002, Paradigms in paradise: revising standard Amazonian prehistory. *The Review of Archaeology* 23 (2): 39–51.
- van der Hammen, T., 2001, Ice-age tropical South America: what was it really like? *Amazoniana* XVI (3/4): 647–652.
- _____, and H. Hooghiemstra, 2000, Neogene and Quaternary history of vegetation, climate, and plant diversity in Amazonia. *Quaternary Science Reviews* 19: 725–742.
- Viveiros de Castro, E., 1996, Images of nature and society in Amazonian ethnology. *Annual Review of Anthropology* 25: 179–200.

- Whitehead, Neil, 1994, The ancient Amerindian policies of the Amazon, the Orinoco, and the Atlantic Coast: a preliminary analysis of their passage from antiquity to extinction. In *Amazonian Indians from Prehistory to the Present: Anthropological Perspectives*, edited by Anna C. Roosevelt, pp. 33–53. University of Arizona Press, Tucson.
- Williams, D., 1997, Early pottery in the Amazon: a correction. *American Antiquity* 62 (2): 342–352.
- Woods, W. I. and J. M. McCann, 1999, The anthropogenic origin and persistence of Amazonian dark earths. *Yearbook of the Conference of Latin American Geographers* 25: 7–14.
- Wüst, Irnhild and Christiana Barreto, 1999, The ring villages of central Brazil: a challenge for Amazonian archaeology. *Latin American Antiquity* 10 (1): 3–23.
- Zucchi, Alberta, 1985, Evidencias arqueológicas sobre posibles grupos de lenguas Caribe. *Antropológica* 63–64: 23–44.

Chieftdoms of Southwestern Colombia

ROBERT D. DRENNAN

INTRODUCTION

The late pre-Hispanic societies of southwestern Colombia have served as “classic” examples in the chieftdom literature. The early Spanish colonizers found it easy to identify indigenous caciques and cacicazgos (or señores and señoríos). The ethnohistoric sources on the Muisca and the Cauca Valley are especially rich in descriptions of wealthy and powerful chiefs promoting economic specialization and engaged in continual rivalry and warfare against each other, and these sources have been widely utilized by anthropologists (for example, Trimborn 1949; Carneiro 1990, 1991; Langebaek 1987, 1992).

There is also substantial precedent behind the application of the term “chieftdom” to the much earlier pre-Hispanic societies of the zone (for example, Reichel-Dolmatoff 1973). Some argument has focused on whether these societies were chieftdoms or not, but this argument depends on taking quite a narrow definition of “chieftdom” as a very specific societal type with a redistributive economy and a particular kind of kinship system. If “chieftdom” is used in a broader sense to refer to any society that encompasses more than a single local community and has some degree of institutionalized social inequality (Drennan and Uribe 1987), then it is clear that southwestern Colombia witnessed the emergence of numerous chieftdoms over a period of at least 1,500 years prior to the Spanish Conquest. Identifying a society as a chieftdom, based on such a broad definition, however, is not really to say very much; it is not a conclusion, but rather a starting point for investigation of the nature and variety of social organization that fits under this broad umbrella and of the forces that produce it (Drennan 1995a, 1996). A great deal of work still remains to be done in order to document just how complex these various societies were, as well as just how they were complex (Gnecco 1996a).

The environment of southwestern Colombia offers human populations rich and highly varied resources. The broad and relatively dry Andean cordillera of Ecuador becomes

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

progressively wetter as one moves northward into Colombia, where it divides into Western, Central, and Eastern cordilleras (Figure 21.1). The chiefdoms discussed in this chapter lie within 6° north of the equator, so annual temperature variation is minimal, but permanently snowcapped volcanic peaks rise to more than 5,000 masl, towering over the hot deep trenches of the Cauca and Magdalena river valleys. Precipitation is at least adequate for rainfall agriculture across most of southwestern Colombia, and excess of precipitation makes flooding, erosion, and landslides more widespread problems than drought. Regions dry enough to make irrigation useful today do occur, however, at lower elevations, and the streams flowing from the cordilleras provide abundant water for such systems. Natural vegetation ranges from xerophytic in some relatively restricted hot low-elevation zones, through dry scrub forest to wetter varieties of tall tropical forest to the distinctive scrub, grassland, and swamp of the cold, wet páramo. Soils are varied but often locally very fertile and highly productive when planted with traditional crops that included maize, amaranth, manioc, beans, squash, coca, potatoes, sweet potatoes, and others.

The archaeological cultures that form the basic units of Colombian culture history are numerous and small, many extending across distances of 100 km or less. These cultures have been defined in stylistic terms, relying primarily on gold work and ceramics, with sporadic contributions from other items of material culture (such as sculpture or tombs) or from ethnohistoric sources. Where enough information is available to reconstruct the scale of sociopolitical units with much confidence, it is clear that multiple still smaller chiefly polities existed within the stylistic domain of a single archaeological culture. Stylistic integrity, then, does not correspond to sociopolitical integration. The small scale of sociopolitical units has sometimes been attributed to the difficulty of transportation and communication in the rugged mountain topography, but there is no indication of less fragmented political organization in the long, open valleys of the Magdalena and Cauca rivers, which form splendid avenues of communication. This paper is organized, then, according

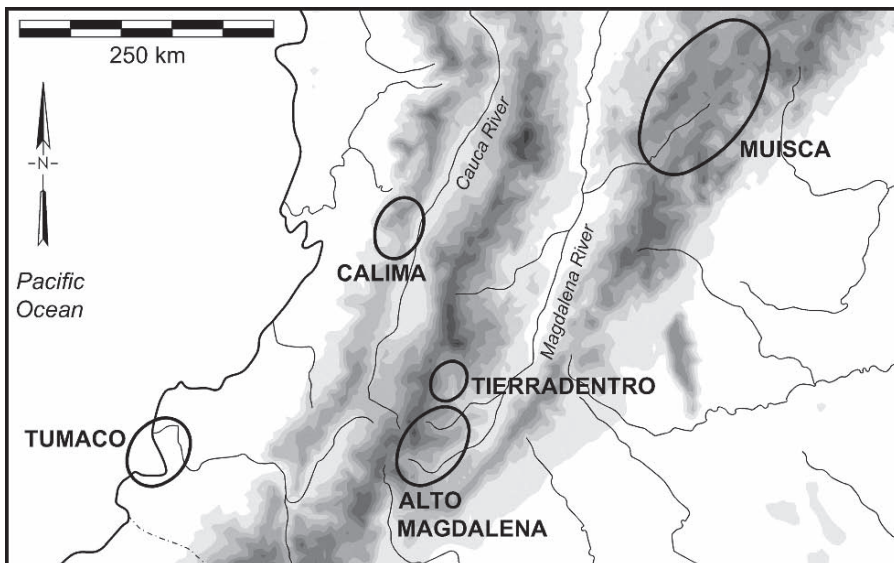


Figure 21.1. Map of southwestern Colombia showing the regions discussed in the text. (Robert Drennan)

to archaeological cultures, including only those for which there is enough information to enable discussion, not just of style and iconography, but of a trajectory of social change.

THE ALTO MAGDALENA (SAN AGUSTIN)

Archaeological attention was drawn early on to the Alto Magdalena (Figure 21.1). The spectacular tombs and monumental sculpture of San Agustín were described in print 250 years ago (Santa Gertrudis 1770), and archaeologists were drawn to them repeatedly through the twentieth century (Preuss 1931; Pérez de Barradas 1943; Duque 1964; Duque and Cubillos 1979, 1983, 1988, 1993; Llanos 1995b; and others). Consequently, the Alto Magdalena is perhaps southwestern Colombia's most studied archaeological region (Drennan 2000). The famous tombs pertain mostly to the Regional Classic Period between about AD 1 and 900, and consist of earthen mounds up to some 4 m high and 40 m across over a principal burial chamber of large stone slabs, sometimes containing a wooden or stone sarcophagus. Although extremely acid soils make the recovery of skeletal material rare, it appears that a single individual was typically buried in this principal chamber. Smaller slab tombs and burial pits of various shapes and sizes might be included within the mound as well. Monumental sculpture was sometimes buried in the larger mounds and adorned the level plaza areas around the mounds, which seem suitable for ritual assembly of moderate numbers of spectators and/or participants (Figure 21.2). While a number of particularly large tombs and elaborate statues are found at various locations not far from the modern town of San Agustín, dozens of separate archaeological sites are known to contain such features (Sotomayor and Uribe 1987; Drennan 2000, 2005).

The iconography and symbolic significance of the Alto Magdalena statuary have been the subject of numerous analyses (Preuss 1931; Pérez de Barradas 1943; Duque 1964; Reichel-Dolmatoff 1972; Hernández de Alba 1979; Gamboa Hinestrosa 1982; Bruhns 1982; Velandia 1994; Llanos 1995a). While these analyses disagree on many points, the combinations of human and animal figures and characteristics (Figure 21.3) leave little doubt that the



Figure 21.2. Burial mounds and adjacent plaza with statues in the Alto Magdalena. (Robert Drennan)



Figure 21.3. Alto Magdalena sculpture showing supernatural combinations of human and animal figures and characteristics. (Robert Drennan)

subject matter is supernatural. Some have argued, more specifically, that these are representations of the shamanic human-animal transformations known ethnographically for a number of indigenous belief systems in northern South America. The principal individuals, then, whose burials were accompanied by such statues, might have been shamans, or priests, or more secular leaders whose authority was backed up by supernatural power.

Although enough gold work exists to define a regional style, in the broader context of southwestern Colombia, gold in the Alto Magdalena stands out primarily for its scarcity (Duque 1982). The tombs, architecturally and sculpturally the most elaborate between the Maya area to the north and the Central Andes to the south, are very undistinguished in terms of offerings of gold, pottery, or other materials commonly associated with the burials of wealthy individuals. Most of the gold work from the Alto Magdalena was apparently recovered from tombs (Bray 2000; Duque 1964), where it does seem to have symbolized social status (Langebaek 2003; Rodríguez 2005). But gold work is a rare find in the Alto Magdalena, and actual offerings of any kind are just not generally abundant, even in

architecturally elaborate tombs. This has been taken to indicate that leadership and social hierarchy in the Regional Classic societies of the Alto Magdalena were founded primarily on religion and ideology, as opposed to economic control or wealth accumulation (Drennan 1995b). Certainly the political economy was capable of mobilizing the resources necessary to construct monumental tombs and statues (Rodríguez 2005), but household archaeology has found only the slightest evidence of the larger or more substantial dwellings or more elaborate or costly possessions that might indicate wealthier households (Blick 1993; Jaramillo 1996; González 1998; Drennan 2000; Quattrin 2001). And economic specialization and exchange, based either on craft production or vertical differentiation of agriculture, seem poorly developed up through the Regional Classic Period (Taft 1993; González 1998; Quattrin 2001). Both these observations add further support to the conclusion that the social glue that held together the Regional Classic hierarchies of the Alto Magdalena derived more from the realm of beliefs than from the economy. This is consistent with the suggestion that monumental tombs and associated rituals were the principal currency of competition for succession at the death of a leader, in a society where leadership was incompletely institutionalized (Langebaek 2003).

Regional settlement study has been carried out in four separate tracts totaling 850 km² in the Alto Magdalena. These are spread from the San Agustín zone along the upper course of the Magdalena River northeastward for some 100 km along the eastern slopes of the Central Cordillera to the Valle de la Plata (Drennan 2000, 2005). Ceramics throughout this area are easily classified into the same set of types, and excavations at several sites demonstrate that these same ceramics are found all along the adjacent floor of the Magdalena Valley (Llanos 1988, 1990, 1993, 1999; Moreno 1991, 1995; Sánchez 1991). Sites with monumental tombs and sculpture, however, are restricted to the higher flanks of the Central Cordillera between about 1,400 and 2,000 masl. It is this same zone of fertile soils, abundant rainfall, and very steep slopes (Herrera et al. 1989), where the density of Regional Classic occupation is by far the highest, reaching levels estimated between 22 and 44 persons per km²—somewhat in excess of modern population density in the same zone (Drennan 2005). Even at such high population density, substantial areas of uncleared forest, as well as under-exploited zones of very fertile soils, have been seen as evidence that Regional Classic population was still well below carrying capacity under the existing agricultural technology (Drennan and Quattrin 1995). Cold, wet conditions verging on páramo set the upper limit to substantial pre-Hispanic human occupation at about 2,600 masl. Occupation was spread in very dispersed fashion through the landscape, occurring largely in the form of individual farmsteads or small groups of houses interspersed with cultivated and uncultivated land (Figure 21.4). Excavated houses in the Alto Magdalena are round and small—less than 20 m² until after the Regional Classic (Blick 1993; Jaramillo 1996; Drennan 2000; Quattrin 2001)—and are usually taken to be the residences of nuclear family households. There is no spatial indication that interaction between these households was structured into the kind of small local communities, or villages, often assumed to characterize simple agrarian societies (Peterson and Drennan 2005; Drennan 2005; Drennan and Peterson 2005). The lack of correspondence between the distribution of occupation or of elite centers and the distribution of prime agricultural resources has been seen as further evidence that control over basic resources was not at the heart of social hierarchy in the Regional Classic (Drennan and Quattrin 1995; González 1998; Drennan 2005).

Although dispersed, settlement distribution was not uniform. Rather, it formed clear concentrations at a regional scale—zones where residence, while still interspersed with

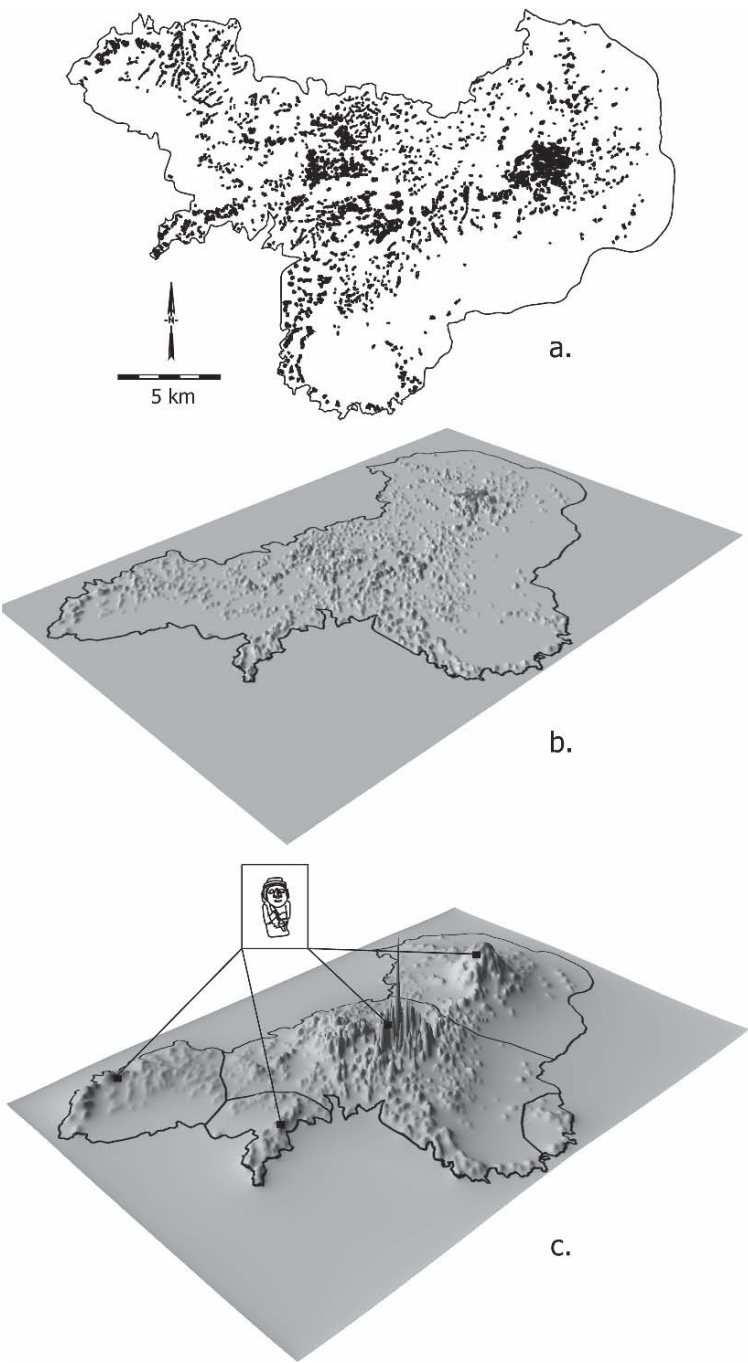


Figure 21.4. The distribution of Regional Classic Period occupation in the western survey zone of the Valle de la Plata, in the Alto Magdalena. a. map of occupied areas; b. occupational density represented as a surface, showing a jumble of dispersed occupation not forming clear nucleated local communities; c. occupational density as a mathematically smoothed surface, showing higher-order communities, each with a central funerary complex (Peterson and Drennan 2005; Drennan and Peterson 2005; Drennan, ed., 2005)

ample amounts of unoccupied land, was denser than in other zones that, thus, separated the concentrations (Figure 21.4). In one surveyed area in the Valle de la Plata, these concentrations, or higher-order communities, have been interpreted as small chiefly polities, each focused around a ritual center with monumental tombs and sculpture (Drennan and Quattrin 1995; Peterson and Drennan 2005; Drennan 2005; Drennan and Peterson 2005). The burials of deceased leaders, and the rituals that may have been carried out for some time afterward at the permanent monuments that marked their places of interment, seem likely to have been an essential element in the centripetal forces that produced the demographic centralization evident in the settlement patterns. The settlement concentrations comprised populations of perhaps as many as 5,000 inhabitants in an area no more than 10 or 15 km across. The tomb-and-statue complexes in the western survey zone of the Valle de la Plata, shown in Figure 21.4, are not the most elaborate of the Alto Magdalena, but complete results of settlement study around the most impressive centers near San Agustín (Drennan 2000) have not yet been presented.

The Formative Period, which precedes the Regional Classic in the Alto Magdalena, occupies the first millennium BC, and has been divided into three roughly equal parts. Population levels were much lower than those of the Regional Classic, but occupation was scattered broadly throughout the region from very soon after the establishment of cultivation and sedentary living around 1000 BC. Regional-scale settlement concentrations, foreshadowing those of the Regional Classic, are detectable during the latter part of the Formative, although the tendency toward concentration is not as strong as it was later on. A few dates for monumental tombs suggest that their construction began in the last few centuries BC, but the practice became considerably more common and widespread at about AD 1, coinciding with dramatic regional population growth.

After about AD 900, in the Recent Period, large earthen burial mounds and monumental statues were no longer made. Nor are other monumental remains in evidence. This was once taken to indicate an abandonment of the zone most densely occupied during the Regional Classic, but it is now clear that regional population actually grew, and the settlement concentrations of the Regional Classic persisted and even intensified. This suggests considerable continuity of occupation, but raises the possibility of change in the basis of sociopolitical organization, which seems no less centralized than before, with integration at a similar spatial scale, but lacking the conspicuous symbolic foci provided by the tomb-and-statue complexes. The possibility has been raised that social hierarchy and political centralization were increasingly underwritten by a degree of economic control that rendered continued construction of burial monuments unnecessary (Drennan 1995b). Most houses continue to be small, but one, variously identified as a public structure or a chief's house, reaches nearly 60 m² (Duque and Cubillos 1981). If a residence, its larger size could indicate a household of substantially greater wealth. In the arena of craft production, there is evidence of more specialization and possibly greater control by elites (Taft 1993). Greater investment in intensifying agricultural production through drainage works is also in evidence by the Recent Period, raising yet another familiar possibility of resource mobilization by elites (Sánchez 2000, 2005). Some evidence suggests a major population decline in the zone at 1,400–2,000 masl shortly before the Spanish Conquest, while lower elevations continued to be occupied (Drennan 2005). These lower zones are much more conspicuous in sixteenth-century Spanish accounts of indigenous occupation, and yield abundant late pre-Hispanic ceramic types not commonly found higher up. Cultural relationships within the Alto Magdalena and with neighboring regions may well have been in flux in the fifteenth and sixteenth centuries.

TIERRADENTRO

Tierradentro is technically part of the Alto Magdalena, in the upper drainage of a major tributary to the Magdalena, the Páez River. It lies just to the north of the zone discussed above (Figure 21.1), but is distinguished from it by the presence of different (though related) ceramics and sculpture. Sedentary occupation was first established in Tierradentro at about the same time as in the Alto Magdalena (Langebaek, Dever, and Blick 2001). This Early 1 Period (1000–600 BC) occupation consisted of a small number of widely scattered farmsteads. In Early 2 (600–200 BC) the number of widely scattered farmsteads nearly doubled, but the total remained tiny. Production of salt from salty spring water apparently began, and may represent a degree of productive specialization that continues into subsequent periods. The population grew dramatically in the Middle 1 Period (200 BC–300AD) and was concentrated especially in the Quebrada San Andrés (Langebaek, Dever, and Blick 2001), paralleling demographic processes in the Alto Magdalena at this time. The favored zone for settlement was at roughly the same elevation as that in the Alto Magdalena, and similarly consisted of the well-watered steep slopes of ridges and canyons interspersed with patches of more level land. The inhabitants of Tierradentro began to carve statues in a style with similarities to that of the Alto Magdalena; some, but not all, of the Alto Magdalena's iconographic themes are represented as well (Sotomayor and Uribe 1987).

In the Middle 2 Period (AD 300–900) population levels soared to new heights, and nucleated villages became more common. Production of statues continued, but these are not regularly found in association with the villages. On occasion, they occur in less populated zones with severely looted artificial mounds that may have contained slab tombs, again recalling but not precisely duplicating those of the Alto Magdalena (Langebaek, Dever, and Blick 2001). As in the Alto Magdalena, some spectacular gold work is known from tombs, but it is rare, compared to other regions in southwestern Colombia. This period is taken to be the maximum development of hierarchically organized society, but the distribution of occupation corresponds less well to the agricultural productivity of the region's soils than in earlier and later periods, suggesting that control over agricultural production was not an important basis of elite position (Langebaek, Dever, and Blick 2001).

Population continued to increase in the Late Period (AD 900–1650) and was more concentrated into villages than before (Langebaek, Dever, and Blick 2001). Production of statues apparently ceased, but the large subterranean tombs for which the region is famous (Figure 21.5) most likely date to this period (Chaves and Puerta 1986). These tombs provided for the secondary burials of considerable numbers of individuals in a funerary pattern that does not emphasize hierarchical social differentiation or much individuation at all through offerings, position, placement, or other features. Spanish colonial accounts describe Páez "chiefdoms" in the region, but the chiefs seem to have impressed the Spanish more with their wildness and fierceness in their remote mountain redoubts, than with their power and wealth. Leadership was fairly diffuse (Rappaport 1982). These ethnohistorically known groups, though, seem to represent patterns of organization rather different from their pre-Hispanic counterparts, either because of social change produced by colonization or because they moved into a largely depopulated region from elsewhere early in the Colonial period, and thus do not represent cultural continuity with the pre-Hispanic past at all.



Figure 21.5. Subterranean tomb for multiple secondary burials in Tierradentro; the roof has collapsed, revealing side chambers (right and left) and entrance stairway (center). (Robert Drennan)

TUMACO

Tumaco lies just north of the border between Colombia and Ecuador in the hot, extremely humid zones of dense forest and mangrove swamp of the Pacific coastal plain (Figure 21.1). The earliest sedentary occupation occurs during the Inguapí I phase (600–350 BC), and substantially more settlement is registered in Inguapí II (350 BC–AD 350). This is the period of the Tumaco-La Tolita tradition (Bouchard 1982–83, 1984; Patiño 2003), best known from both Ecuador and Colombia for the complicated ceramic vessels and figures of elaborately costumed individuals recovered by looters and purchased by collectors (Patiño and Hernández 2001). Ornamental objects of gold, along with the elaborate ceramic pieces, are taken to be symbolic of high social status in life and in death, and the “chiefdom” label has been applied to Inguapí II society (Patiño 1992, 2003; Rodríguez 2002; Patiño and Hernández 2001). Tombs with lavish offerings of gold work and ceramics are known from La Tolita, although, unlike the earthen mounds and statues of the Alto Magdalena, they were completely subterranean. Their identification as elite tombs depends, then, not on their character as impressive permanent visible monuments, but rather on the unusual richness and fineness of the offerings included (Rodríguez 2002).

Here we concentrate on a region of about 25 km² near Tumaco, although the trajectory of social change there seems consistent with what is known of the larger area from which Tumaco-La Tolita ceramics are known, which runs some 300 km along the Pacific coast. Inguapí II occupation was concentrated in mangrove and interfluvial zones, and most sites are very small surface scatters, but others are as large as 20 ha (Patiño 2003). Artificial mounds ranging up to as high as 8 m were constructed in stages (Bouchard 1982–83, 1984; Patiño 2003). These were common at both large and small settlements, but not ubiquitous. Although burials of various kinds are encountered in them, their fundamental purpose seems more architectural: to raise the structures on their tops above the surrounding

level. These structures may have been elite residences or public or ceremonial buildings (Patiño 2003). Marine and estuarine subsistence resources were complemented by raising maize, squash, manioc, and other crops—sometimes on raised fields constructed to make poorly drained local areas productive (Patiño 1995, 2003). An association between these intensively cultivated raised field zones and larger settlements with bigger mounds may suggest greater involvement by elites in the subsistence economy than appears to have been the case in the Alto Magdalena or Tierradentro.

El Morro times (AD 350–600) witnessed a major decline in numbers of sites, and a ceramic complex different enough from Inguapí II to suggest cultural discontinuity, although no occupational hiatus is observed (Bouchard 1982–83, 1984; Patiño and Hernández 2001; Patiño 2003). Mounds and raised field complexes were abandoned, and elaborate ceramic figures were no longer made. El Morro is taken to represent either the gradual disappearance of hierarchical social organization (Patiño 2003), or at least a considerable reduction in complexity (Rodríguez 2002). A hiatus is proposed for the two centuries following El Morro, until the archaeological record reappears, about AD 800, in the form of the Bucheli-Caunapí phase, represented by light occupation atop Inguapí II mounds and along river banks, which lasts until the Spanish Conquest (Bouchard 1982–83, 1984; Patiño 2003). Little evidence of social hierarchy, political centralization, or intensive production is seen.

CALIMA

The core of the Calima zone (Figure 21.1) occupies an area of some 50 km² north of the city of Cali in the Western Cordillera at elevations up to some 2,500 masl and running down to the edge of the Cauca river valley below 1,000 m. Sedentary agricultural occupation, as in so much of southwestern Colombia, began within a few centuries after 1000 BC with the Ilima Period. At least by the end of the first millennium BC, settlements, although quite small, were fairly numerous and widely scattered through the well-watered slopes of the Western Cordillera and adjacent portions of the lower, warmer, and drier Cauca Valley (Cardale 1992, 2005; Rodríguez 2002). Extremely well made pottery vessels and figures are known from tombs (Cardale 1992, 2005; Rodríguez 2002). Gold work probably began in the latter part of the Ilima Period. It is scarce by comparison with later periods in Calima (Cardale 2005), although it seems rather more abundant than in any period in the Alto Magdalena or Tierradentro. Shaft and chamber tombs apparently left no permanent monuments visible on the surface. Those excavated by archaeologists have been shallow, but looters report much deeper and larger tombs with considerably richer offerings (Cardale 1992, 2005; Rodríguez 2002). The artifactual and burial evidence for social hierarchy seems broadly comparable to that for Tumaco-La Tolita, with which it may well be roughly contemporaneous if it dates to the latter part of the Ilima Period. No evidence is yet reported, however, of settlement hierarchy or regional-scale population concentration (Cardale 2005) of the sort that has been used to argue for some degree of political centralization in other parts of southwestern Colombia at this, or later, times.

The Ilima Period transforms itself into the Yotoco Period in the first century AD (Bray 1992, 2005). Substantial forest clearance indicates much higher population levels, drainage ditches were dug through field systems (reminiscent of those found in the Alto Magdalena in the Recent Period), and extensive cultivation of maize, beans, squash, and other crops was supplemented by more intensive cultivation of some local areas of raised

fields. Small farmsteads were widely scattered across the landscape, but more nucleated communities may have existed as well, especially in the Cauca Valley (Bray 1992, 2005; Rodríguez 2002). Yotoco tombs, like those of Tumaco-La Tolita and Ilama, were subterranean, rather than surface monuments, and some of them had extremely rich offerings of very finely made gold pieces, including items of personal adornment, weapons, and other regalia. These strongly recall sixteenth century descriptions of chiefly finery, and suggest much richer and more powerful chiefs than existed in Ilama times (Bray 1992, 2005; Rodríguez 2002).

Gold work seems finer and far more abundant than for any period or place discussed thus far in this paper (Rodríguez 2002). The site of Malagana lies in the Cauca Valley just south of the Calima core zone. Famously plundered following its accidental discovery in 1992, Malagana is variously assigned to Yotoco or denominated a closely related neighboring culture (Herrera, Cardale, and Bray 1994; Rodríguez 2002; Bray et al. 2005). Estimates of the amount of gold removed by looters in a period of weeks from the tombs of this one site alone range up to over 200 kgs, or thousands and thousands of pieces, including exceptionally spectacular and finely made ones—an amount probably far in excess of the total of all gold work recovered by looters or anyone else from all sites of all periods in the Alto Magdalena. It is, at the same time, important to remember that many gold and gold-alloy objects were utilitarian, and many others were representations of supernatural themes (as in Figure 21.6), including some of the same ones represented in the sculpture of the Alto Magdalena. These objects were clearly not just items of wealth, but also had substantial religious or ideological importance (Bray 2005). Ceramic vessels were common offerings in more ordinary burials. The richest tombs in the Western Cordillera did not contain especially large numbers of pottery objects or particularly finely made ones, although this may not be true down in the Cauca Valley (Bray 1992, 2005; Rodríguez 2002).

The period between AD 500 and 800 is seen as one of cultural dislocation in Calima, with the appearance of new styles of pottery and gold work (Bray 1992, 2005). The ceramics and goldwork of the Sonso Period, which gradually replaced Yotoco somewhere during



Figure 21.6. Elaborate goldwork from Calima. (photo courtesy of Carl Langebaek)

or soon after this interval, have far less iconographic content and lack the abundance of very finely made examples seen during Yotoco times (Gähwiler 1992, 2005; Rodríguez 2002). Use of gold for personal adornment may have become less restricted to elites (Rodríguez 2002; Herrera 2005), and there are fewer reports of extremely rich burials than was the case in Yotoco times. Interment of multiple individuals in the same tomb, often as secondary burials consisting of bone bundles, became common (Gähwiler 1992, 2005; Rodríguez 2002). While this may sound superficially like a decline in complexity, Sonso social organization may well have been characterized by greater differentiation of a larger number of roles than existed in Yotoco times, and gold work, in particular, suggests a higher degree of specialized production. The principal feature of social organization that becomes less conspicuous in the archaeological record is a monolithic system of social ranking. Sonso population densities were probably even higher than those of Yotoco, and these substantial populations persisted right up to the Spanish Conquest, as was generally the case along the Cauca river valley (Herrera 2005). Rural residence continued to consist of dispersed farmsteads, often visible in the form of small house terraces, as had been the case earlier as well (Salgado, Rodríguez, and Bashilov 1993). Very large artificially leveled spaces, of various shapes and up to around 1 ha in area, now join the small house terraces as conspicuous features on the landscape. It is not entirely clear to what use these were put; they are sometimes, but not always, associated with abundant occupational debris or monuments (Herrera 1992, 2005; Rodríguez 2002). Many of the ridged field areas of the Yotoco period apparently went out of use (Herrera 1992, 2005), but modification of the landscape for agricultural purposes continued. Wooden weapons, fortuitously preserved in water-logged tombs, provide at least some archaeological support for sixteenth century accounts that focus heavily on warfare for the Cauca Valley in general (Herrera 1992, 2005).

MUISCA

The Muisca (Figure 21.1) are not usually included under the heading of southwestern Colombia, but they are one of Colombia's best-known chiefdoms ethnohistorically. Sixteenth century accounts are especially rich for the Muisca because a number of chiefdoms covered a large area (including the Spanish colonial capital), because their populations were quite high, and because their chiefs were very wealthy and at the apogee of their power at the moment of the Spanish Conquest. A considerable amount of archaeological research has been carried out in the Muisca area as well (Enciso and Therrien 1996), but it has been difficult in a number of respects to square the indications of social organization provided by the archaeological record with the often very detailed sixteenth century descriptions. The result has been that our common knowledge of Muisca chiefdoms has been based almost exclusively on ethnohistoric sources, with very little contribution from archaeology. Given this situation, it is not surprising that our vision of Muisca chiefdoms has tended to be very synchronic. This situation has changed considerably in recent years, and our archaeological understandings of Muisca society and its development are, as of this writing, advancing very rapidly.

The Muisca area lies on top of the Eastern Cordillera, extending some 200 km from one end to the other. Bogotá, near the southwestern extreme of Muisca territory, takes its name from the Muisca chiefdom where the Spanish conquerors situated their city, and other Muisca chiefs' settlements were scattered to the northeast, through the large, cool but well-watered, flat basin known as the Sabana de Bogotá, at about 2,600 masl and beyond

into the more dissected altiplano beyond it (Falchetti and Plazas 1973). Solid evidence of the beginning of sedentary agricultural life goes no farther back than about 400 BC, when the Herrera Period began. Very small egalitarian villages were scattered widely through the Muisca area (Langebaek 1995, 2001; Boada n.d. a, n.d. b). By the latter part of the Herrera Period, there began to be traces of economic specialization and social inequality, visible archaeologically at the site of El Venado in the form of within-community differences between the artifact and ecofact assemblages of different households and barrios (Boada 1999, 2006), although such differences did not appear at the site of Tiguasú (Salamanca 2001). Salt production on a substantial scale is evidenced at Zipaquirá (Cardale 1981a, 1981b) and at other sites as well. Social prestige may have been based in part on participation in communal feasting (Boada 1999, 2006). Occupation spread into more of the many small subareas and valleys within Muisca territory, but population levels continued to be quite low (Langebaek 1995, 2001; Boada n.d. a, n.d. b). Despite the complete absence of regional population pressure, evidence from at least the southern Sabana de Bogotá indicates that construction of the substantial areas of raised fields known for the region (Broadbent 1987) began in Herrera times (Boada n.d. a, n.d. b).

The Early Muisca Period, which followed Herrera, witnessed accelerated social change. Specialists in Muisca archaeology have, however, found it difficult to reach agreement on just which sites are contemporaneous with which others, and on when to place the transition from Herrera to Early Muisca, with the dates assigned ranging from as early as AD 200 (Boada n.d. a, n.d. b) to as late as AD 1000 (Langebaek 2001). Systematic regional surveys totaling some 400 km² in Fúquene, the Valle de Leiva, and the Sabana northwest of Bogotá (Langebaek 1995, 2001; Boada n.d. a, n.d. b) provide firm documentation of population growth, and this is echoed in the larger numbers of Early Muisca sites known generally across the region. Substantial unoccupied areas of highly productive soils, though, indicate that available resources could easily support much larger populations (Langebaek 1995, 2001; Boada n.d. a, n.d. b). Differences in artifact assemblages and burials between elite and non-elite households are much stronger than before (Boada 2006; Kruschek 2003). Communal feasting and chicha drinking was clearly concentrated at elite residences. This undoubtedly accounts for major concentrations of deer bone in such contexts, although it is also possible that elites ate more meat and better cuts of meat than non-elites. Textile production intensified, and evidence of it is especially abundant in elite households. Elite households also had a greater variety of items reflecting contacts with other communities, and congregated together in one spatially separate barrio of the community (Boada 1999, 2006). Analysis of burials, however, reveals only very modest evidence of social or economic differentiation (Boada 2000).

Around the northern and western fringes of modern Bogotá, Early Muisca settlement was a mixture of moderately concentrated villages and dispersed rural households (Boada n.d. a, n.d. b). In the Valle de Leiva, a considerable majority of the Early Muisca regional population lived in two clear concentrations (Langebaek 2001), although the fragmentation of these two population concentrations into separate zones of occupation of varying size undermines meaningful definition of small local communities, or villages, and the notion of settlement hierarchy becomes irrelevant. This fragmentation seems the same phenomenon seen in greater detail in the internal division of the community at El Venado into spatially separate barrios (Boada 1999, 2006). Clearly visible, however, in the settlement distribution in the Valle de Leiva, are two higher-order communities, in the sense that Peterson and Drennan (2005) use the term: one at El Infiernito and one at Suta (Langebaek 2001; Henderson and Ostler 2005). The community at El Infiernito contained



Figure 21.7. The community at El Infiernito, in the Muisca area, contained a monumental construction, consisting of columnar stones set in two parallel rows and other less well preserved arrangements. (photo courtesy of Carl Langebaek)

a monumental construction, consisting of columnar stones set in two parallel rows and other less well preserved arrangements (Figure 21.7). This recalls the monumental burial complexes upon which higher-order communities were focused in Regional Classic Alto Magdalena (Langebaek 2001). At least at El Infiernito a tomb of large slabs covered with an earthen mound was adjacent to one arrangement of columns, although such associations are not consistently found. It is also hard to be confident of the date of these monuments' construction and use. Two distinct barrios are detectable at El Infiernito from Herrera through Muisca times. The columnar stone monuments are in the larger of the two, which is where evidence of feasting and elite residence is concentrated in the Early and Late Muisca periods. At Tunja, the only other reported columnar stone monument associated with residential debris is likewise in an occupation spanning Herrera to Late Muisca. An area of especially high-density ceramic debris of both Early and Late Muisca periods at Suta has been labeled a chiefly residential compound. Some 600 m northwest of it, is a mound of apparent Late Muisca date and uncertain function (Henderson and Ostler 2005).

The total populations of these Early Muisca higher-order communities in the Valle de Leiva were very much smaller than those of the Regional Classic in the Alto Magdalena, and, while El Infiernito is not the only complex of monumental columns known for the Muisca area, such features are rare. Regional settlement distribution in Fúquene also shows some tendency to concentrate, but higher-order communities are not as conspicuous as in the Valle de Leiva, and none have monumental constructions. Sites in other parts of the Muisca area have been identified as very large villages (Falchetti 1975; Boada 1987), but it is difficult to compare them to Fúquene or the Valle de Leiva without more systematic knowledge of the distribution of occupation around them. Taken together, this evidence

suggests that the regional centripetal forces that produced the ethnohistorically known Muisca chiefdoms were beginning to operate in Early Muisca times, if weakly and unevenly in different parts of the Muisca zone. In both Fúquene and the Valle de Leiva there is less correspondence between the distributions of settlement and agricultural resources during the Early Muisca period than previously, and it is hard to argue for elite control over prime agricultural land (Langebaek 1995, 2001). By the end of Late Herrera, gold work and mummification, both important in burials of Muisca elites at the time of the Spanish Conquest, had put in their appearance (Langebaek 2001).

The transition from Early to Late Muisca is placed somewhere between AD 1000 and 1200, and Late Muisca continues until the sixteenth century. All evidence points toward population levels at dramatic new highs (Langebaek 1995, 2001; Boada n.d. a, n.d. b). Early Muisca higher-order communities persisted in both Fúquene and the Valle de Leiva, and were joined by newly formed ones (Langebaek 1995, 2001). Fragmentation of the zones of occupation that comprise even the cores of these higher-order communities still makes identification of hierarchies of villages dubious, but the presence of the higher-order communities is unmistakable. These higher-order communities can sometimes be convincingly identified as specific chiefdoms discussed in sixteenth century documents, making clear that they were separate polities (Langebaek 2001). The populations of these communities in Fúquene and the Valle de Leiva were larger than in Early Muisca times, and their spatial extents increased somewhat, but they were still very much smaller in both spatial and demographic terms than the higher order communities of the Regional Classic in the Alto Magdalena. It must be noted, though, that neither of these areas of settlement study includes any of the larger and more powerful chiefdoms described in sixteenth century sources. Survey north and west of Bogotá does approach the centers of more powerful sixteenth century chiefdoms, but areas of coverage are small and fragmented by modern urban occupation (Boada n.d. a). An orientation of settlement, and especially elite settlement, toward the most agriculturally productive land in Fúquene and the Valle de Leiva makes elite control of agricultural production a possibility for Late Muisca, although it was in Late Herrera times that settlement was most oriented to prime land (Langebaek 1995, 2001). The raised fields of the southern Sabana de Bogotá continued in use, and ever larger areas of occupation are associated with them. There is, as yet, however, no clear indication of any special association between them and elite residential areas (Kruschek 2003; Boada n.d. a, n.d. b). Large areas of very productive soils were still under-occupied, bringing into question not only the existence of population pressure, but also the ability of those who did occupy productive locations to “control” the production of agricultural surpluses in any meaningful way. On the other hand, the investment in raised-field construction had become quite large by Late Muisca times. This could have tied commoner populations to specific locales as effectively as scarcity of agricultural land and provided an opportunity for elite control of subsistence production (Boada n.d. a)

While analysis of burials suggests somewhat stronger social and economic differentiation than in earlier periods, the range in quality and quantity of offerings in burials excavated by archaeologists is still quite limited, as is the variation in size and elaboration of tombs (Boada 1998, 2000; Buitrago and Rodríguez 2001; Pradilla 2001). Even rumors of rich tombs excavated by looters seem scarcer and more wispy in Muisca territory than, for example, in Calima. The bodies of sixteenth century Muisca elites were mummified and kept as more visible presences than the commoner bodies buried in cemeteries, and early colonial accounts describe the removal of large quantities of gold and emeralds from mummies stored in caves. It is true that the very richest chiefdoms reported in sixteenth

century accounts have been little investigated by archaeologists, but where archaeological research has been carried out, socioeconomic differentiation is more conspicuous in evidence of how people lived than in evidence of how they were treated at death. At El Venado, for example, wealthy households are even more clearly identifiable than in Early Muisca times, by the same kinds of evidence as before (Boada 2006). Near Funza, lower status households may be more impoverished than before (Kruschek 2003). Spinning and weaving tools are more abundant at El Venado, and continue to be especially associated with wealthy households, as are items probably brought from other communities. This latter aspect of the pattern, however, is reversed at El Infiernito, where one readily identifiable imported ceramic type is more abundant in the lower status residential zone. Specialized pottery production is seen at La Asomada (Falchetti 1975). Ethnohistoric sources suggest highly developed networks of exchange of largely non-subsistence raw materials and craft products on a supra-regional but still relatively modest scale (Langebaek 1987, 1991, 1992). A rapidly growing barrio at El Venado with increasingly strong evidence of craft activities, feasting, and wealth may indicate the emergence of a rival faction, challenging the authority of the established elites (Boada 2006). The currency of such rivalry would appear to be resource mobilization through intensive craft production, extra-community contacts, and bolstering agricultural production, and the utilization of feasting simultaneously for infliction of social debt and social solidarity building.

The archaeological record is entirely consistent with the view, supported by ethno-history, that there was considerable variation in the scale of political integration and the wealth and power of elites in the numerous different polities that made up the Muisca zone. Colonial documents describe theocratic power in Tunja and military power in Bogotá as well as different kinds of economic specializations in different parts of the Muisca area. Native interpreters from the northern part of the Muisca area who learned Spanish were not of use to early colonial administrators in the southern Muisca area because they could not understand the dialects spoken there. Archaeologically, gold work is more abundant in the south than the north, and ceramic types are different as well.

CONCLUSION

Numerous other regions in southwestern Colombia also witnessed the development of pre-Columbian chiefdoms. Some of them are home to very famous archaeological cultures, about which we just do not have complete enough archaeological information to discuss social, political, or economic organization or sufficient chronological control to know how these things changed through time. The Quimbaya culture, for example, located in the Cauca Valley just north of Calima, produced a large amount of very fine metallurgy, well known to looters for quite some time (Pérez de Barradas 1966; Plazas 1978; Llanos 1986). Complementary archaeological information, however, is fragmentary in the extreme. Valiant efforts to integrate this information, and add to it still find themselves at the beginning of the task (for example, González and Barragán 2001), and recent syntheses are forced to speak of the entire 3000 years prior to the Spanish Conquest as a single undifferentiated block of time (for example, Rodríguez 2002). As Cardale and Herrera (1995: 195) have put it, "Southwestern Colombia is a jigsaw puzzle with most of the pieces missing. The map of best known archaeological zones is simultaneously the distribution map of active archaeologists."

In such a situation, there is an understandable tendency to rely heavily on generalizations about Colombian chiefdoms (or even Ecuadorian, Venezuelan, and Central American

chiefdoms) derived mostly from descriptions written during the sixteenth century. When all the gaps between tiny scraps of archaeological information for long sequences in a number of regions, though, are just filled in with generic accounts of wealthy and powerful chiefs, wearing lots of gold, and continually at war with each other, then the societies of all periods and all regions come out sounding just alike, and we lose the opportunity to investigate to just what extent they might have differed from each other or by just what courses they came to be as they were. And, while all the regions discussed in this paper did see the pre-Hispanic development of what have been broadly labeled chiefdoms, there is considerable variation in the character and pacing of these developments.

At least some degree of social inequality can be found fairly far back in most of the sequences discussed here, but each comes to a point at which there is a dramatic increase in social hierarchy and sociopolitical centralization, accompanied by soaring regional population levels. This happened earliest in Tumaco, with the appearance of the gold work, ceramic art, tombs, and structures on mounds that mark the Tumaco-La Tolita culture from about 350 BC. The Alto Magdalena was next, with the emergence of the monumental burial complex and the great intensification of centralized high-order communities around AD 1. Fewer kinds of evidence are available for Calima, but lavish tombs, population growth, an increase in nucleated communities, and more intensive forms of cultivation mark the same time period from about AD 1. In Tierradentro a threshold of population growth and nucleated communities may have been crossed somewhat later—about AD 300. Such a concentrated period of social change probably did not come to the Muisca area until about AD 1000 and still continued vigorously after AD 1200. These episodes of greatly accelerated social change, spread as they are across some 1,300 or 1,400 years, would thus seem to be driven by largely local forces, since processes operating all across southwestern Colombia ought to have produced greater chronological correspondence.

This is not to say that the regions discussed here were not in contact with each other. They unquestionably were, and they shared a set of beliefs represented in an iconography that makes it possible, for example, to define a southwestern Colombian tradition of gold work (Plazas and Falchetti 1983; Bray 2000). This iconography can be traced right into Alto Magdalena sculpture as well (Bray 2000, 2005). Long-distance trade involving large quantities of a wide variety of both luxury and non-luxury goods is reconstructed on this basis, together with Ilama ceramic figures from Calima depicting people with cargo baskets on their backs, and traces of roads on the landscape, some of which have been shown to be in use in pre-Hispanic times (Cardale and Herrera 1995; Cardale 1996, 2005). A more conservative view sees long-distance trade limited to luxury goods moving through contacts between elites in different regions seeking to legitimize their social positions (Gnecco 1996b). A still more conservative view does not deny widely shared beliefs and iconography, but stresses the extremely small quantity of even luxury items, especially from the Alto Magdalena, that can be conclusively shown to be the product of inter-regional exchange (Drennan 2000), and emphasizes that objects in “foreign” styles are very often locally made.

Not only did the episodes of rapid social change discussed above come at different times, they produced chiefdoms of distinctly different character. The monumental funerary complexes of the Alto Magdalena seem to represent intensely personalized leadership patterns built largely on religious and symbolic foundations with only poorly developed economic differentiation or specialization. In Tumaco and Calima chiefdoms, elite tombs are not monumental (or even visible once the burial has been made), but they contain considerable amounts of personal possessions as offerings. This, together with extremely

laborious means of intensifying agricultural production through raised fields, may be the clue to a stronger economic component to social hierarchy in these societies, even though ideology was by no means irrelevant to the establishment of chiefly positions (Langebaek 2003). A few monumental constructions exist for Early Muisca chiefdoms, but they may have emphasized communal public space, more than highly personal memorials, and economic differentiation and craft specialization are more readily identifiable in the archaeological record, giving yet a different flavor to Muisca social hierarchy from early on in its developmental trajectory.

Tumaco chiefdoms disintegrated around AD 350, with population decline, disuse of raised field complexes, cessation of such elaborate tombs, and other archaeological manifestations often identified as societal collapse. In Calima, raised fields used in earlier times went out of use sometime between AD 500 and 800, although population appears to have grown, and gold work continued to be abundant, but less concentrated into lavish tombs. In the Alto Magdalena, the early chiefdoms were punctuated about AD 900 by change of yet a different sort, as population grew and concentrated even more strongly into higher-order communities. Several different lines of evidence point tantalizingly in the direction of an increasingly strong economic component to sociopolitical hierarchy, with more craft specialization and more intensive forms of agriculture. The AD 1200 transition from Early Muisca to Late Muisca does not speak so strongly of a change in social direction but rather of a further intensification of previously visible trends. All this amounts to a remarkably varied pattern of changes in just a few regions not very widely separated from each other. The complicated and varied interplay between economic and symbolic bases of power, between subsistence and craft economies, between highly personal and more communal leadership, and between nascent and fully institutionalized social hierarchy produces a rich array of different social forms within the broadly defined chiefdom class. This array altogether fails to correspond to any simple dichotomy or single gradient, such as the recently popular one playing a corporate mode of organization off against a network mode (Blanton et al. 1996). The multiple important axes of variation just do not fall into the simple pattern of correlation suggested (for example, by Feinman 2001). This situation does, however, offer rich opportunities for continued research aimed at providing fuller and more reliable reconstructions of the nature of the societies that developed in pre-Hispanic southwestern Colombia so as to sustain further efforts to understand the processes that produced them and gave them their distinctive characters.

ACKNOWLEDGMENTS I am very grateful to Carlos Armando Rodríguez, Ana María Boada, and Marianne Cardale and her co-authors for providing copies of important work in press and for permission to cite it here. Carl Langebaek also generously shared as yet unpublished information and made very thoughtful and useful comments on the manuscript. None of these colleagues should be blamed for any misuse I may have made of their information or ideas.

REFERENCES

- Blanton, Richard E., Gary M. Feinman, Stephen A. Kowalewski, and Peter N. Peregrine, 1996, A dual-processual theory for the evolution of Mesoamerican civilization. *Current Anthropology* 37: 1–14.
- Blick, Jeffrey P., 1993, Social Differentiation in the Regional Classic Period (A.D. 1–900) in the Valle de la Plata, Colombia. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.
- Boada Rivas, Ana María, 1987, *Asentamientos Indígenas en el Valle de la Laguna (Samacá–Boyacá)*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.

- _____, 1998, Mortuary tradition and leadership: a Muisca case from the Valle de Samacá, Colombia. In *Recent Advances in the Archaeology of the Northern Andes: In Memory of Gerardo Reichel-Dolmatoff*, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, pp. 54–70. UCLA Institute of Archaeology Monographs 39. Los Angeles.
- _____, 1999, Organización social y económica en la aldea Muisca de El Venado, Valle de Samacá, Boyacá. *Revista Colombiana de Antropología* 35:118–145.
- _____, 2000, Variabilidad mortuoria y organización social prehispánica en el sur de la Sabana de Bogotá. In *Sociedades Complejas en la Sabana de Bogotá, Siglos VIII al XVI D.C.*, edited by Braida Enciso and Monika Therrien, pp. 21–58. Instituto Colombiano de Antropología e Historia, Bogotá.
- _____, 2006, *The Evolution of Social Hierarchy in a Muisca Chiefdom of the Northern Andes of Colombia*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 17.
- _____, n.d. a, Patrones de asentamiento y agricultura intensiva de las sociedades tempranas de la Sabana de Bogotá, Colombia. *Vínculos*. (in press)
- _____, n.d. b, *Patrones de Asentamiento Regional y Sistemas de Agricultura Intensiva en Cota y Suba, Sabana de Bogotá (Colombia)*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá. (in press)
- Bouchard, Jean-François, 1982–83, Excavaciones arqueológicas en la región de Tumaco, Nariño, Colombia. *Revista Colombiana Antropología* 24: 125–334.
- _____, 1984, *Recherches Archéologiques dans la Région de Tumaco*. Éditions Recherche sur les Civilisations, Mémoire No. 34. Institute Français d'Études Andines, Paris.
- Bray, Warwick, 1992, El Período Yotoco. In *Calima: Diez Mil Años de Historia en el Suroccidente de Colombia*, edited by Marianne Cardale de Schrimpf, Warwick Bray, Theres Gähwiler-Walder, and Leonor Herrera, pp. 75–124. Fundación Pro Calima, Bogotá.
- _____, 2000, Malagana and the goldworking tradition of southwest Colombia. In *Precolumbian Gold: Technology, Style, and Iconography*, edited by Colin McEwan, pp. 94–111. British Museum Press, London.
- _____, 2005, Craftsmen and farmers: the archaeology of the Yotoco Period. In *Calima and Malagana: Art and Archaeology in Southwestern Colombia*, edited by Marianne Cardale Schrimpf, pp. 98–139. Pro Calima Foundation, Bogotá.
- _____, Marianne Cardale Schrimpf, Leonor Herrera, Anne Legast, Diógenes Patiño, and Carlos Armando Rodríguez, 2005, Lords of the Marshes: the Malagana People. In *Calima and Malagana: Art and Archaeology in Southwestern Colombia*, edited by Marianne Cardale Schrimpf, pp. 140–201. Pro Calima Foundation, Bogotá.
- Broadbent, Sylvia M., 1987, The Chibcha raised-field system in the Sabana de Bogotá, Colombia: further investigations. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson, and Gregory Knapp, pp. 403–423. BAR International Series 359(ii). Oxford.
- Bruhns, Karen Olsen, 1982, A view from the bridge: Intermediate Area sculpture in thematic perspective. *Baessler-Archiv: Beiträge zur Völkerkunde* 30: 147–180.
- Buitrago, Luz Marina, and Orlando Rodríguez, 2001, Estudio bioantropológico de la colección Eliécer Silva Celis, Museo Arqueológico de Sogamoso. In *Los Chibchas: Adaptación y Diversidad en los Andes Orientales de Colombia*, edited by José Vicente Rodríguez, pp. 217–236. Departamento de Antropología, Universidad Nacional de Colombia, Bogotá.
- Cardale de Schrimpf, Marianne, 1981a, *Las Salinas de Zipaquirá: Su Explotación Indígena*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, 1981b, Ocupaciones humanas en el altiplano Cundi-Boyacense. *Boletín del Museo del Oro* 12: 1–20.
- _____, 1992, La gente del Período Ilama. In *Calima: Diez Mil Años de Historia en el Suroccidente de Colombia*, edited by Marianne Cardale de Schrimpf, Warwick Bray, Theres Gähwiler-Walder, and Leonor Herrera, pp. 25–71. Fundación Pro Calima, Bogotá.
- _____, 1996, *Caminos Prehispánicos en Calima*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, 2005, The people of the Ilama Period. In *Calima and Malagana: Art and Archaeology in Southwestern Colombia*, edited by Marianne Cardale Schrimpf, pp. 36–97. Pro Calima Foundation, Bogotá.
- _____, and Leonor Herrera, 1995, Caminos y comerciantes en el suroccidente de Colombia entre 2500 y 1500 AP. In *Perspectivas Regionales en la Arqueología del Suroccidente de Colombia y Norte del Ecuador*, edited by Cristóbal Gnecco Valencia, pp. 195–222. Editorial Universidad del Cauca, Popayán.
- Carneiro, Robert L., 1990, Chiefdom-level warfare as exemplified in Fiji and the Cauca Valley. In *The Anthropology of War*, edited by Jonathon Haas, pp. 190–211. Cambridge University Press, Cambridge.

- _____, 1991, The nature of the chiefdom as revealed by evidence from the Cauca Valley of Colombia. In *Profiles in Cultural Evolution: Papers from a Conference in Honor of Elman R. Service*, edited by A. Terry Rambo, and Kathleen Gillogly, pp. 167–190. University of Michigan Museum of Anthropology Anthropological Papers, No. 85. Ann Arbor.
- Chaves Mendoza, Alvaro and Mauricio Puerta Restrepo, 1986, *Monumentos Arqueológicos de Tierradentro*. Biblioteca Banco Popular, Bogotá.
- Drennan, Robert D., 1995a, Chiefdoms in northern South America. *Journal of World Prehistory* 9: 301–340.
- _____, 1995b, Mortuary practices in the Alto Magdalena: the social context of the “San Agustín Culture.” In *Tombs for the Living: Andean Mortuary Practices*, edited by Tom D. Dillehay, pp. 79–110. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, 1996, Betwixt and between in the Intermediate Area. *Journal of Archaeological Research* 4: 95–132.
- _____, 2000, *Las Sociedades Prehispánicas del Alto Magdalena*. Instituto Colombiano de Antropología e Historia, Bogotá.
- _____ (ed.), 2005, *Pre-Hispanic Chiefdoms in the Valle de la Plata, Vol. 5: Regional Settlement Patterns*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 16. Pittsburgh.
- _____, and Christian E. Peterson, 2005, Early chiefdom communities compared: the settlement pattern record for Chifeng, the Alto Magdalena, and the Valley of Oaxaca. In *Settlement, Subsistence, and Social Complexity: Essays Honoring the Legacy of Jeffrey R. Parsons*, edited by Richard E. Blanton. Cotsen Institute of Archaeology, UCLA, Los Angeles.
- _____, and Dale W. Quattrin, 1995, Social inequality and agricultural resources in the Valle de la Plata, Colombia. In *The Foundations of Social Inequality*, edited by Gary M. Feinman and T. Douglas Price, pp. 207–231. Plenum Press, New York.
- _____, and Carlos A. Uribe, 1987, Introduction. In *Chiefdoms in the Americas*, edited by Robert D. Drennan and Carlos A. Uribe, pp. vii–xii. University Press of America, Lanham, MD.
- Duque Gómez, Luis, 1964, *Exploraciones Arqueológicas en San Agustín*. Revista Colombiana de Antropología, Suplemento No. 1. Imprenta Nacional, Bogotá.
- _____, 1982, *Gold Museum Colombia, Banco de la República*. Editions Delroisse, Bogotá.
- _____, and Julio César Cubillos, 1979, *Arqueología de San Agustín: Alto de los Idolos, Montículos y Tumbas*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, and Julio César Cubillos, 1981, *Arqueología de San Agustín: La Estación*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, and Julio César Cubillos, 1983, *Arqueología de San Agustín: Exploraciones y Trabajos de Reconstrucción en las Mesitas A y B*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, and Julio César Cubillos, 1988, *Arqueología de San Agustín: Alto de Lavapatas*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, and Julio César Cubillos, 1993, *Arqueología de San Agustín: Exploraciones Arqueológicas Realizadas en el Alto de las Piedras (1975–1976)*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.
- Enciso, Braida and Monika Therrien, 1996, *Compilación Bibliográfica e Informativa de Datos Arqueológicos de la Sabana de Bogotá, Siglos VII al XVI D.C.* Instituto Colombiano de Antropología e Historia, Bogotá.
- Falchetti, Ana María, 1975, *Arqueología de Sutamarchán, Boyacá*. Biblioteca Banco Popular, Bogotá.
- _____, and Clemencia Plazas, 1973, *El Territorio de los Muisca a la Llegada de los Españoles*. Universidad de los Andes, Bogotá.
- Feinman, Gary M., 2001, Mesoamerican political complexity: the corporate-network dimension. In *From Leaders to Rulers*, edited by Jonathan Haas, pp. 151–176. Kluwer Academic/ Plenum Publishers, New York.
- Gähwiler-Walder, Theres, 1992, Los inicios de la Tradición Sonso. In *Calima: Diez Mil Años de Historia en el Suroccidente de Colombia*, edited by Marianne Cardale de Schrimpf, Warwick Bray, Theres Gähwiler-Walder, and Leonor Herrera, pp. 127–147. Fundación Pro Calima, Bogotá.
- _____, 2005, A new lifestyle in the southwest: the beginnings of the Sonso Tradition. In *Calima and Malagana: Art and Archaeology in Southwestern Colombia*, edited by Marianne Cardale Schrimpf, pp. 202–223. Pro Calima Foundation, Bogotá.
- Gamboa Hinestrosa, Pablo, 1982, *La Escultura en la Sociedad Agustiniiana*. Ediciones Centro de Investigación y Educación Cooperativas (Universidad Nacional de Colombia), Bogotá.
- Gnecco Valencia, Cristóbal, 1996a, Reconsideración de la complejidad social del suroccidente Colombiano. In *Dos Lecturas Críticas: Arqueología en Colombia*, pp. 43–74. Fondo de Promoción de la Cultura, Bogotá.

- _____. 1996b, Relaciones de intercambio y bienes de elite entre los cacicazgos del suroccidente de Colombia. In *Chieftains, Power, and Trade: Regional Interaction in the Intermediate Area of the Americas*, edited by Carl H. Langebaek and Felipe Cárdenas Arroyo, pp. 175–196. Departamento de Antropología, Universidad de los Andes, Bogotá.
- González Fernández, Víctor, 1998, Pre-Hispanic Change in the Mesitas Community: Documenting the Development of a Chiefdom's Central Place in San Agustín, Colombia. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.
- _____. and Carlos Andrés Barragán (eds.), 2001, *Arqueología Preventiva en el Eje Cafetero: Reconocimiento y Rescate Arqueológico en los Municipios Jurisdicción del Fondo para la Reconstrucción del Eje Cafetero, FOREC*. Instituto Colombiano de Antropología e Historia, Bogotá.
- Henderson, Hope and Nicholas Ostler, 2005, Muisca settlement organization and chiefly authority at Suta, Valle de Leyva, Colombia: a critical appraisal of native concepts of house for studies of complex societies. *Journal of Anthropological Archaeology* 24: 148–178.
- Hernández de Alba, Gregorio, 1979, *La Cultura Arqueológica de San Agustín*. Carlos Valencia Editores, Bogotá.
- Herrera, Leonor, 1992, El período Sonso Tardío y la conquista Española. In *Calima: Diez Mil Años de Historia en el Suroccidente de Colombia*, edited by Marianne Cardale Schrimpf, Warwick Bray, Theres Gähwiler-Walder, and Leonor Herrera, pp. 151–177. Fundación Pro Calima, Bogotá.
- _____. 2005, The Late Sonso Period and the Spanish conquest. In *Calima and Malagana: Art and Archaeology in Southwestern Colombia*, edited by Marianne Cardale Schrimpf, pp. 224–257. Pro Calima Foundation, Bogotá.
- _____. Marianne Cardale Schrimpf, and Warwick Bray, 1994, Los sucesos de Malagana vistos desde Calima: atando cabos en la arqueología del suroccidente de Colombia. *Revista Colombiana de Antropología* 31: 145–171.
- Herrera, Luisa Fernanda, Robert D. Drennan, and Carlos A. Uribe (eds.), 1989, *Pre-Hispanic Chiefdoms in the Valle de la Plata, Vol. 1: The Environmental Context of Human Habitation*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 2. Pittsburgh.
- Jaramillo E., Luis Gonzalo, 1996, *Pre-Hispanic Chiefdoms in the Valle de la Plata, Vol. 3: The Socioeconomic Structure of Formative 3 Communities*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 10. Pittsburgh.
- Kruschek, Michael H., 2003, The Evolution of the Bogotá Chiefdom: A Household View. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.
- Langebaek Rueda, Carl Henrik, 1987, *Mercados, Poblamiento e Integración Étnica entre los Muiscas, Siglo XVI*. Banco de la República, Bogotá.
- _____. 1991, Highland center and foothill periphery in 16th-Century eastern Colombia. *Research in Economic Anthropology* 13: 325–339.
- _____. 1992, *Noticias de Caciques Muy Mayores: Origen y Desarrollo de Sociedades Complejas en el Nororiente de Colombia y Norte de Venezuela*. Universidad de los Andes, Bogotá.
- _____. 1995, *Regional Archaeology in the Muisca Territory: A Study of the Fúquene and Susa Valleys*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 9. Pittsburgh.
- _____. 2001, *Arqueología Regional en el Valle de Leiva: Procesos de Ocupación Humana en una Región de los Andes Orientales de Colombia*. Instituto Colombiano de Antropología e Historia Informes Arqueológicos, No. 2. Bogotá.
- _____. 2003, The political economy of pre-Columbian goldwork: four examples from northern South America. In *Gold and Power in Ancient Costa Rica, Panama, and Colombia*, edited by Jeffrey Quilter and John W. Hoopes, pp. 245–278. Dumbarton Oaks Research Library and Collection, Washington, D. C.
- _____. Alejandro Dever, and Jeffrey Blick, 2001, Arqueología en Tierradentro: cambios sociales y ocupación del espacio. In *Historia, Geografía y Cultura del Cauca: Territorios Posibles, Tomo II*, edited by Guido Barona Becerra and Cristóbal Gnecco Valencia, pp. 325–338. Editorial Universidad del Cauca, Popayán.
- Llanos Vargas, Héctor, 1986, Los Quimabayas y sus vecinos: problemas arqueológicos para los museos regionales de Armenia, Pereira y Manizales. *Boletín del Museo del Oro* 17:78–83.
- _____. 1988, *Arqueología de San Agustín: Pautas de Asentamiento en el Cañón del Río Granates–Saladoblanco*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____. 1990, *Proceso Histórico Prehispánico de San Agustín en el Valle de Laboyos (Pitalito–Huila)*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.

- _____, 1993, *Presencia de la Cultura de San Agustín en la Depresión Cálida del Valle del Río Magdalena: Garzón–Huila*. Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.
- _____, 1995a, *Los Chamanes Jaguares de San Agustín: Génesis de un Pensamiento Mitopoético*. H. Llanos Vargas, Santafé de Bogotá.
- _____, 1995b, *Montículo Funerario del Alto de Betania (Isnos): Territorialidad y Espacio de los Muertos en la Cultura de San Agustín*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, 1999, *Asentamientos Aborígenes en la Llanura de Matanzas, Tierra Fértil de San Agustín*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- Moreno González, Leonardo, 1991, *Arqueología de San Agustín: Pautas de Asentamiento Agustinianas en el Noroccidente de Saladoblanco (Huila)*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- _____, 1995, *Arqueología de San Agustín: Patrones de Poblamiento Prehispánico en Tarquí–Huila*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- Patiño Castaño, Diógenes, 1992, Sociedades Tumaco-La Tolita: Costa Pacífica de Colombia y Ecuador. *Boletín de Arqueología* 7 (1): 37–58.
- _____, 1995, Asentamiento, economía y ecología en el Pacífico prehispánico de Colombia y Ecuador. In *Perspectivas Regionales en la Arqueología del Suroccidente de Colombia y Norte del Ecuador*, edited by Cristóbal Gnecco Valencia, pp. 164–178. Editorial Universidad del Cauca, Popayán.
- _____, 2003, *Tumaco Prehispánico: Asentamiento, Subsistencia e Intercambio en la Costa Pacífica de Colombia*. Editorial Universidad del Cauca, Popayán.
- _____, and Martha Cecilia Hernández, 2001, Antiguos pobladores agro-alfareros de las tierras bajas. In *Historia, Geografía y Cultura del Cauca: Territorios Posibles, Tomo II*, edited by Guido Barona Becerra and Cristóbal Gnecco Valencia, pp. 339–348. Editorial Universidad del Cauca, Popayán.
- Pérez de Barradas, José, 1943, *Arqueología Agustiniense: Excavaciones Arqueológicas Realizadas de Marzo a Diciembre 1937*. Imprenta Nacional, Bogotá.
- _____, 1966, *Orfebrería Prehispánica de Colombia: Estilos Quimbaya y Otros*. Museo del Oro, Bogotá.
- Peterson, Christian E. and Robert D. Drennan, 2005, Communities, settlements, sites, and surveys: regional-scale analysis of prehistoric human interaction. *American Antiquity* 70: 5–30.
- Plazas, Clemencia, 1978, “Tesoro de los Quimbayas” y piezas de orfebrería relacionadas. *Boletín del Museo del Oro* 2: 21–28.
- _____, and Ana María Falchetti, 1983, Tradición metalúrgica del suroccidente Colombiano. *Boletín del Museo del Oro* 14: 1–32.
- Pradilla Rueda, Helena, 2001, Descripción y variabilidad en las prácticas del Cercado Grande de los Santuarios, Tunja, Boyacá. In *Los Chibchas: Adaptación y Diversidad en los Andes Orientales de Colombia*, edited by José Vicente Rodríguez, pp. 165–206. Departamento de Antropología, Universidad Nacional de Colombia, Bogotá.
- Preuss, Konrad Theodor, 1931, *Arte Monumental Prehistórico, Excavaciones Hechas en el Alto Magdalena y San Agustín (Colombia): Comparación Arqueológica con las Manifestaciones Artísticas de las Demás Civilizaciones Americanas*. Escuelas Salesianas de Tipografía y Fotograbado, Bogotá.
- Quattrin, Dale W., 2001, *Pre-Hispanic Chiefdoms in the Valle de la Plata, Vol. 4: Vertical Economy, Interchange, and Social Change during the Formative Period*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 11. Pittsburgh.
- Rappaport, Joanne, 1982, Territory and Tradition: The Ethnohistory of the Páez of Tierradentro. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- Reichel-Dolmatoff, Gerardo, 1972, *San Agustín: A Culture of Colombia*. Praeger, New York.
- _____, 1973, The agricultural basis of the Sub-Andean chiefdoms of Colombia. In *Peoples and Cultures of Native South America*, edited by Daniel R. Gross, pp. 28–36. Doubleday and Natural History Press, Garden City, New York.
- Rodríguez Ruíz, Carlos Armando, 2002, *El Valle del Cauca Prehispánico*. Departamento de Historia, Universidad del Valle, Cali.
- _____, 2005, *Los Hombres y las Culturas Antiguas del Suroccidente Colombiano*. Universidad del Valle, Cali.
- Salamanca, María Fernanda, 2001, Tiguasú: el caso de un asentamiento Herrera-Muisca temprano en el Valle de Leiva. In *Arqueología Regional en el Valle de Leiva: Procesos de Ocupación Humana en una Región de*

- los Andes Orientales de Colombia*, edited by Carl Henrik Langebaek Rueda, pp. 60–68. Instituto Colombiano de Antropología e Historia Informes Arqueológicos, No. 2. Bogotá.
- Salgado López, Héctor, Carlos Armando Rodríguez, and Vladimir Alexsandrovich Bashilov, 1993, *La Vivienda Prehispánica Calima*. Instituto Vallecaucano de Investigaciones Científicas, Cali.
- Sánchez, Carlos Augusto, 1991, *Arqueología del Valle de Timaná (Huila)*. Fundación de Investigaciones Arqueológicas Nacionales del Banco de la República, Bogotá.
- , 2000, Agricultura intensiva, dinámica de población y acceso diferencial a la tierra en el Alto Magdalena. *Arqueología del Area Intermedia* 2: 69–98.
- , 2005, *Sociedad y Agricultura Intensiva en el Alto Magdalena*. Instituto Colombiano de Antropología e Historia Informes Arqueológicos, No. 4. Bogotá.
- Santa Gertrudis, Fray Juan de, 1970, *Maravillas de la Naturaleza*. Biblioteca Banco Popular, Bogotá.
- Sotomayor, María Lucía and María Victoria Uribe, 1987, *Estatuaria del Macizo Colombiano*. Instituto Colombiano de Antropología, Bogotá.
- Taft, Mary M., 1993, Part Two: patterns of ceramic production and distribution. In *Pre-Hispanic Chiefdoms in the Valle de la Plata, Vol. 2: Ceramics—Chronology and Craft Production*, edited by Robert D. Drennan, Mary M. Taft, and Carlos A. Uribe, pp. 106–172. University of Pittsburgh Memoirs in Latin American Archaeology, No. 5. Pittsburgh.
- Trimborn, H., 1949, *Señorío y Barbarie en el Valle del Cauca: Estudio sobre la Antigua Civilización Quimbaya y Grupos Afines del Oeste de Colombia*. Consejo Superior de Investigaciones Científicas, Instituto Gonzalo Fernández de Oviedo, Madrid.
- Velandia Jagua, César Augusto, 1994, *San Agustín: Arte, Estructura y Arqueología*. Fondo de Promoción de la Cultura, Bogotá.

Late Pre-Hispanic Chiefdoms of Northern Colombia and the Formation of Anthropogenic Landscapes

AUGUSTO OYUELA-CAYCEDO

INTRODUCTION

The basic framework of Colombia archaeology was established by Gerardo Reichel-Dolmatoff, an Austrian-born Colombian who made immense contributions to knowledge about his adopted land through his fieldwork in many of its regions (Oyuela-Caycedo 1996a, 1998). The most useful synthesis of Colombian archaeology is his book *Colombia* (1965, 1997). Reichel-Dolmatoff divided Colombian prehistory into the following periods: Paleo-Indian, Formative, and Regional Developments (the coast and inland; the chiefdoms: San Agustín, Tierradentro, Quimbaya, Calima, Narino, and Sinú; the incipient states: Muisca and Tairona). In terms of territorial space the major regions of Colombia are: the Atlantic or Caribbean Coast (Botiva Contreras 1989), the middle valley of the Magdalena River, the central mountains of Antioquia, the mountains of Santander, the high plateau of Cundinamarca and Boyaca, the mountains and drainage of the Cauca River, the Pacific coast and west cordillera, the upper Magdalena River region, the southern Andean mountains, the oriental grasslands of Colombia, and the Colombian Amazon.

Northern Colombia is a geographical area that needs to be studied intensively. It is known as “El Caribe” or “la Costa” and its people are called “Costeños.” It is a territory that is recognized as having a history very different from the Andean altiplano of Cundinamarca-Boyaca. La Costa, composed of the states of Cordoba, Bolívar, Cesar, Magdalena, and Guajira, is the place from which Spanish conquest and colonization expanded into the Andes. Only two regions of this territory are analyzed in this chapter. One corresponds to

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

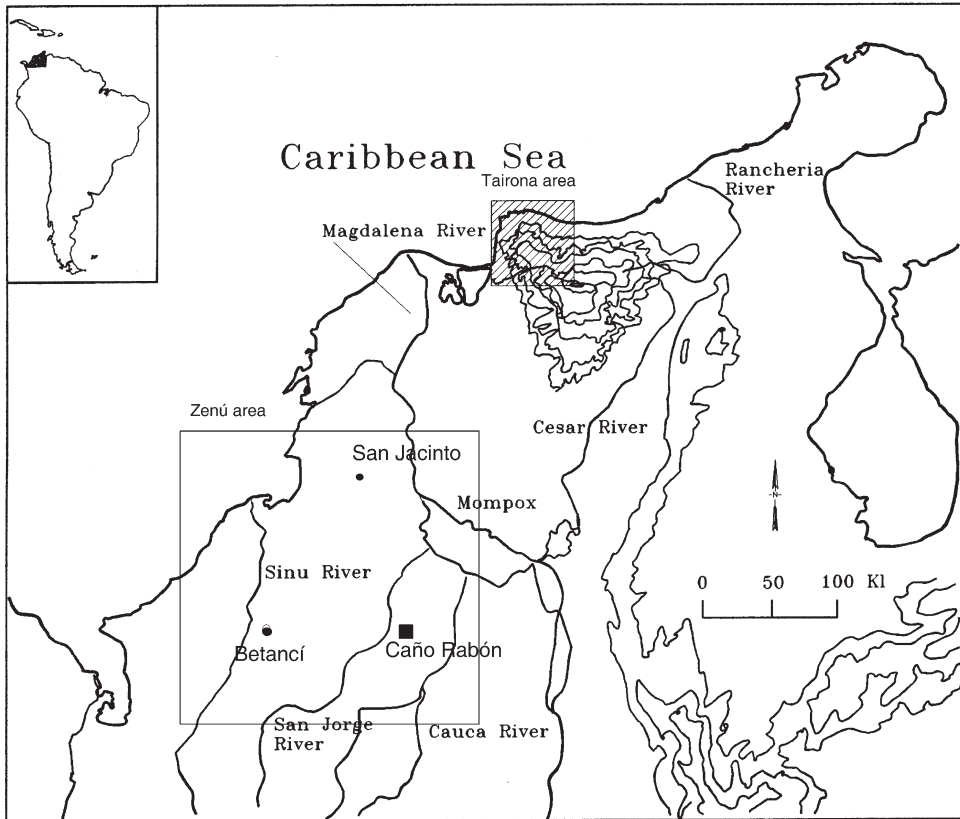


Figure 22.1. General location of the Sinú (within the outlined square box) and Tairona chiefdoms (hachured area) in Colombia. (Augusto Oyuela-Caycedo)

the region of the Sinú chiefdoms and the other to the Tairona chiefdoms (Figure 22.1). The two are very different in terms of their geography and pre-Hispanic complexity. However, they share a common feature: the massive transformation of the landscape through human use, leaving the ecology of the regions profoundly transformed.

Northern Colombia is characterized by a mosaic of micro-environments with an archaeological past that is still far from adequately understood for any time period or framework, chronological or spatio-cultural. The landscape is characterized by rolling hills of grasslands that cover 70% of the landscape, some of which are subject to seasonal flooding. Forest is restricted to the last fingers of the Andes with an isolated pyramid-shaped mountain with permanent glaciers located only a short distance from the Caribbean Sea. The coastal environment is diverse with deep-sea bays enriched by upwelling currents and large lagoons whose salty seawaters are replaced seasonally by river runoff, according to rainy-dry cycles. Alluvial fans and large flood plains that are underwater on a seasonal basis dissect the northern coast. It is also a region with large estuarine conditions found in the deltas of the Sinú and Magdalena rivers. In contrast to these areas of humid environments, at the northeastern tip of Colombia is the Guajira, a dry desert peninsula with sand dunes and xerophytic conditions. It is in this mosaic of ecological variations that several

chiefdoms developed complex relationships with the environment, transforming it in significant ways that continue to affect present-day occupants of the region.

Our knowledge of humans in northern Colombia begins at least 11,000 years ago in the Paleoindian period. A few serendipitous archaeological findings indicate the easiest route taken by the first populations as they entered and colonized eastern South America. For instance, we have learned about the seasonal use of the high terraces of the Magdalena River for hunting with projectile point technologies (López Castaño 1998, 1999).

The next time periods, known as the Archaic and Formative (marked by the introduction of pottery), saw restricted seasonal movements of populations that depended heavily on the use of diverse micro-environments, and efficient use of resources as they became available seasonally. More is known about these Archaic/Formative times than the Paleoindian Period, but our view of lifeways is mostly limited to the coastal areas where sites such as Monsu, Puerto Hormiga, Barlovento, Canapote, Crespo and Puerto Chacho have been studied. Only one interior site, known as San Jacinto 1, has been excavated and analyzed (Oyuela-Caycedo 1996; Oyuela-Caycedo and Bonzani 2005).

Around 4000 BC, pottery was invented, as demonstrated by the excavations of San Jacinto 1, a site located in the rolling hills of the anthropogenic savannas of Bolívar. Pottery was invented in a grasslands environmental context, and it consists of well-decorated vessels with zoomorphic lugs that do not seem to repeat the same motifs. However, the pottery displays a high diversity in decorative technology that is found later in neighboring ceramic complexes, but with simpler designs. Examples include lower Central America (such as, the Monagrillo ceramics) and northwestern South America (such as pottery with Barrancoide style decorations). Initially, pottery was used primarily for serving purposes, and possibly for the fermentation of beverages. Cooking was done in roasting pits for steaming foods that included wild meat and possibly tamales (a steamed or boiled mass of flour wrapped in large leaves) made with flour processed from the grass seed plants (Oyuela-Caycedo 1995a). Ground stone technology included metates and grinding tools, while nutcrackers appear that are similar to examples from Spanish Conquest times.

We can speculate that reduction in people's mobility and increased dependency on domesticated plants favored the rise of decentralized forms of power in the lowlands of Colombia. This decentralized power appears to be associated with chiefdom societies and was probably tied to population density and expansion of the diet, including the use of domesticated plants. The first secure evidence of the formation of chiefdom societies in northern Colombia (see Chapter 21 in this volume for discussion of central and southern Colombia) occurs in two areas, pertaining to the Sinú and the Tairona chiefdoms (Figure 22.1), although the internal variability in both is high and still needs to be defined into local and regional variations.

Common to both the Sinú and Tairona cultural areas are elaborate transformations of the landscape. The Sinú region is formed by a complex ecological system of river drainages and interfluvial savannas. Part is an area of seasonal flooding produced by the Sinú River and its delta, which disperses waters into the Atlantic Ocean. In contrast to this, the San Jorge River drains its waters through the Cauca River into internal deltas that form the lower depression of Mompox where they join the Magdalena River. Between these active flood plains there is a rolling landscape known as the savannas of Bolívar with low extensions of the Andes mountains, including the Serranías de Ayapel, San Jacinto and San Jerónimo.

The second region with complex chiefdoms is the Sierra Nevada de Santa Marta (SNSM), the Tairona heartland. Here a great mountain rises 5,775 masl in front of the

Caribbean Sea, with deep bays and a large lagoon named Cienaga Grande de Santa Marta, which constitutes part of the delta of the Magdalena River.

The two regions have different histories. Sinú is linked to flood management and grassland populations that were able to exploit a rich environment. The Tairona populations lived in a rough mountainous landscape with slopes of more than 45 degrees and poor soils, but with rich coastal fishing and natural areas that facilitated salt production.

The main objective of this paper is to discuss what we have learned of the relationships of these chiefdom societies with their environments and the transformations of the landscape as case studies in historical ecology. In both complexes of chiefdoms, Sinú and Tairona, the human populations shaped the landscape to such a degree that they are best understood as anthropogenic—two great archaeological landscapes transformed by human activities involving intensive selection and modification (Denevan 1992: 375). The impact of these chiefdoms on the landscape is apparent even in the present, defining the ecology of the regions. Only recently have they become more “natural” after the depopulation created by the Spanish conquest that decimated the native population to a fraction of its pre-Hispanic size.

The old Sinú and Tairona culture areas are not the only ones in northern coastal Colombia with significant pre-Hispanic developments in landscape transformations and political complexity. There are other areas but little research has been conducted in insecure regions controlled by guerrilla or paramilitary groups. For example, the Serranía de San Lucas, which is the mountainous ridge of the Central Cordillera that separates the Cauca and Magdalena drainage systems from one another is a region rich in gold. There is anecdotal information about large settlements, ancient roads, and pre-Hispanic terraces, but the area is totally unknown in terms of professional research because this territory is avoided by state agencies and has been under the control of guerrilla organizations (ELN) for decades. Other regions also present problems of access and security due to their marginalization from the modern Colombian state.

This chapter considers how and why these pre-Hispanic societies developed a degree of complexity that places them in the chiefdom category. All of them had a strong impact on their landscapes, to the point that the modern environments can be characterized as archaeological artifacts still in use today. Descendants of the original inhabitants still live in both regions. Linguistically, the descendants of the Sinú have lost their language, making it impossible to classify them in terms of known linguistic families (Adelaar and Muysken 2004). However, taking toponyms into consideration the area seems to have been occupied by Chibchan speakers. In the case of the SNSM, the various groups that still exist also belong to the Chibchan language family.

SINÚ CHIEFDOMS OF THE SAVANNA AND FLOODPLAIN

The first ethnohistoric descriptions of the Sinú [Note 1] come from the Spanish chronicles of the conquest. In the compilation by Fray Pedro Simon, which is based on reports from field expeditions, the earliest known encounters took place in 1534. In their pursuit of gold the Spanish learned that there were three provinces in the realm, each with a chief, and that one of the provinces had a village dedicated to serving as a burial ground for all the elite chiefs. This was the village of the Finzenú, in what is today the lower and middle Sinú River Valley. The other provinces were Panzenú in the lower San Jorge River Valley, and Zenúfana (the chief had the same name) located in the Serranía de San Lucas and

the middle Cauca River Valley up to the Aburra valley (Simon 1981: 97). The Finzenú chief was the sister of the Zenúfana chief, and her name or title was “Tota.” According to Simon’s sources, the Zenúfana had ordered that all principal “señores” (chiefs) be buried in the cemetery of the sanctuary of his sister, the “bohio del Diablo” (Devil’s house) in Finzenú. According to these same sources, if a chief did not want to be buried in the necropolis half of his gold had to be interred in the place assigned to elites of the group within the cemetery. Simon (1981: 98–99) stresses that Tota was the most respected of the three chiefs.

This account promoted the hypothesis that the Sinú chiefdoms were matriarchal, an interpretation reinforced by the abundant representation of females in pottery figurines and vessels (Figure 22.2) (Cristiaa Granda 1996). The settlement of the Tota had twenty main houses for the principals (perhaps secondary chiefs) of the province. Around each there were four smaller dwellings for their granary, servants and others from their land to reside (Simon 1981:103). The descriptions stress that the cemetery located close to the town was the main burial ground for this land. Its mounds were so large that they could be seen from afar. However, the main mound was dedicated to an idol or god (“sepultura de Diablo,” or devil’s burial). It was so large that you could see it from a league away (Simon 1981: 103–104). Around it were located twelve other mounds, all being thirty paces in diameter and the same in height (Simon 1981: 109).



Figure 22.2. Pottery with female representation (C12857B), Betancé style. (Courtesy: Museo del Oro)

The Spanish were impressed with the town and burial mounds they encountered. When they entered one of the houses located in a corner of the main plaza they found 24 gigantic statues laminated with gold. Some of them had gold clothes; half were males and the other half females, looking at each other. In front of each sculpture there was a hammock containing offerings. This main house was able to hold up to 2,000 people (Simon 1981: 105). The Spanish were surprised by the low density of population, and the reason given to them was that most of the people had already died of diseases after an encounter with a Spanish conquistador in 1515 (possibly an expedition by Captain Francisco Becerra with 150 soldiers, none of whom returned except for one Indian who was part of the expedition and escaped to tell about the event, see Herrera 1936: 36; Simon 1981: 111). In the natives' houses they found the weapons of the previous expedition, which had apparently introduced European diseases, and dramatically lowered population densities (see Denevan 1976; Cook 1998). There is also mention of another important sanctuary in the hills named Faraquiel, where the natives hid some of the gold from the burials.

In an explanation given by a young indigenous informant, each of the mounds represented the burial of a chief. The size of the mound corresponded with wealth of the chief, in the amount of labor and number of days of drinking "chicha" (a fermented maize beverage). Another interesting piece of information given is that the earth of the mounds is red (bermeja) and is extracted from some location at a distance. On top they planted a tree, preferably of hobos or ceibas variety (Simon 1981: 107). Simon's account also refers to other burials that did not have mounds. They were easy to spot after the savanna grass was burned, because they were marked with a covering of dark soil two fingers deep, followed by two fingers of white sand.

Fray Pedro Simon's descriptions have been published by others, who probably consulted the same documents from early Spanish expeditions (see Parsons 1952: 71–72 for a literature review with similar interpretations of the chronicles, using other sources). What is extraordinary about the Spanish descriptions is that archaeological evidence supports information about the monumentality of Finzenú. The main mound (in what is today called the region of Betancí) still exists and can be seen from a long distance away (as Parsons indicates), even though it has been heavily looted. The main mound is still 60×40 m in diameter east to west and stands 8 m high (Figure 22.3a, b; Gerardo and Alicia Reichel-Dolmatoff [1958: 59] surveyed the site). The Spanish observation about construction using different soils was confirmed. A larger circular earthwork encloses this mound, and additional, smaller mounds were also recognized.

Monumentality was not limited to mounds and pyramids found all over the region and described by the conquistadors. Indeed, it may be that the Spanish never noticed the most extraordinary of the constructions. These include massive earth works of ridged fields and drainage channels covering half a million hectares in this region (Plazas and Falchetti 1990; Plazas et al. 1993; Figure 22.4). This extensive infrastructure of agricultural earth works was recognized on the ground for the first time by Reichel-Dolmatoff (1953, 1965) and later verified by Parsons and Bowen (1966), thanks to aerial archaeology.

The 600,000 ha of ridged fields located in the Sinú and San Jorge River flood plains act as a drainage system, both allowing and restricting the flow of waters to a complex system of channels (Figure 22.4; for descriptions of similar agriculture systems see Denevan 2001: 213–288 and Chapters 11 and 13 in this volume). The entire region is flooded for seven months of the year (April to November [Note 2]) but thanks to the ridged mounds standing above the flood waters, agriculture is possible throughout the period. Furthermore, flood waters are channeled so that large schools of fish (called locally Bocachico, *Prochilodus*

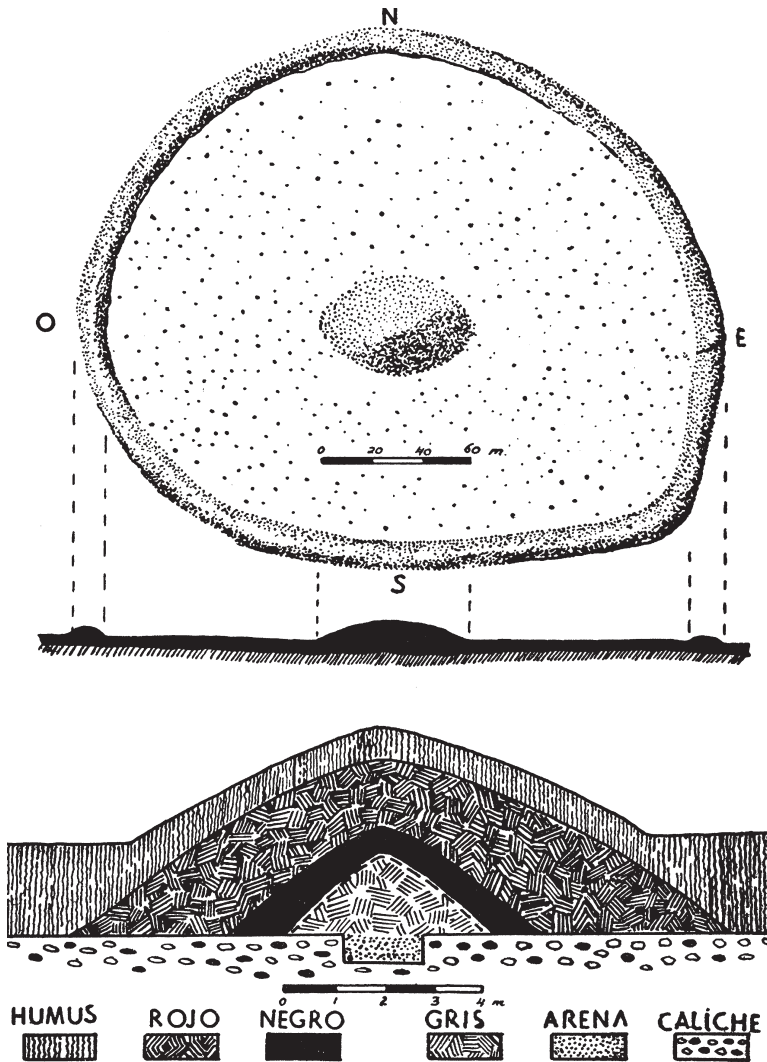


Figure 22.3. a. Mound of Maracayo. b. Mound A of Junquillo, Lagoon of Betancí (After Reichel-Dolmatoff 1957: 150).

reticulatus) can migrate upstream into the region, at the end of March and April (Dahl 1971: 108), an event known today as the “Subienda.” The subsequent abundance of fish enabled the mound builders to catch and process vast quantities by smoking, and by making a fish flour that was possible to store and trade. In the area iguanas also were consumed, as well as their eggs, which are collected at the beginning of flood season today.

What we know of the history of this kind of flood plain agricultural management comes mainly from research in the lower and middle San Jorge River. Construction of agricultural ridged fields was a continual and gradual process going back to the second century AD, and reaching its peak close to the sixth century, when a dry climatic period ushered in a linear settlement pattern along the branches of the rivers. By the tenth century



Figure 22.4. Ridge fields, lower San Jorge. (Courtesy: Museo del Oro)

the wetlands agricultural system expanded into the middle San Jorge River, while the lower San Jorge River was gradually abandoned. However, some scholars argue that it was the arrival of new people, the Malibu, who took over the lower Magdalena and displaced old populations toward the middle-upper San Jorge River, which prompted the abandonment of the extensive wetlands agricultural facilities (Fals Borda 1980; Reichel-Dolmatoff and Dussan 1991; Plazas et al. 1993).

How did this dynamic wetlands agricultural system develop and what are its roots? It is now clear that by about 200 BC there were large permanent settlements such as Momil, which confirm high population concentrations. The problem with our knowledge of the Sinú is that most current archaeological data relates to ceramic sequences, with very limited information about the use of flora and fauna and other resources. However, based on remains from early Archaic sites it is likely that intensive exploitation of river fish and amphibian resources had begun. Settlement survey by Plazas et al. (1993) revealed a dense population concentrated on high ground, including artificial platforms and cluster-like villages dispersed throughout the landscape.

A settlement named Colomboy has been identified in the rolling landscape region, close to floodplains between the San Jorge and Sinú Rivers. A modified terrace surrounded by depressions extends over 2 km² and includes evidence of dense human occupation dated to AD 980 ± 120. This documents a large village in the interfluvial environment that probably participated in intensive exchange with the two neighboring river systems (Botiva Contreras 1994: 100–101; Kurela 1993).

While, we are still far from a clear understanding of the dynamics of human occupation by the ancestors of the Sinú, it is clear that human activities transformed the environment. They certainly favored the expansion of the grassland in interfluvial regions (LeRoy 1957; Parsons 1980: 283–284; Bonzani 1998). This expansion is implied at sites like San Jacinto 1, dating to 4000–3100 BC, where the consumption of wild grasses involved ground

stone technology in the form of metates and manos. With sites such as Momil we know that around AD 200 people were dependent on roots crops, probably manioc, as well as maize (Reichel-Dolmatoff 1956, 1957). We can hypothesize that massive wetland agricultural development of the flood plains was a consequence of seasonal management strategies in seasonally wet-dry regions. Early populations probably abandoned these areas during the height of flooding, limiting exploitation to optimum conditions for fishing agriculture. When the waters were receding cultivars such as corn and manioc were planted, to be harvested in the dry period, along with the fish that were trapped as the region dried. In fact, the fish could have been conserved live in ponds, and consumed as needed in the complex seasonal environmental cycles.

In some areas, such as the lower San Jorge River, populations lived year round in the floodplains as excavated residential mounds testify. Risk management on seasonal floodplains in the tropics promotes three alternative patterns of landscape occupation. In one, sites of residentially and logistically mobile populations are located preferentially on unstable terrain such as point bars or active stream terraces during the dry season, when there is no risk to occupation and the payoff of the locations is very high. During the rainy season, a preference for stable areas such as river terraces, hill-tops, or ridges is predicted. In the second alternative sedentary populations tend to select more stable landscapes during both seasons in order to avoid seasonal flooding and constant destruction of settlements. This seems to be what was going on at sites such as Momil, Colomboy, and Betanci, all located above the active floodplain but with access to it. The third option of landscape occupation in active floodplains depends on massive landscape modification with earthworks and channels that demand intensive labor but allow year round occupation of the area (see Bonzani 1997, 1998; Oyuela-Caycedo 1998b). This was the case in the construction of residential mounds associated with ridged fields and water channels for transportation as well as the management of fish. Settlements described by Plazas et al. (1993:48–60) for Caño Rabón in the San Jorge River drainage fit this type (Figure 22.5). This third lifestyle was probably the consequence of population pressure in more stable environments, obliging people to occupy high risk areas such as the lower Sinú and San Jorge rivers and subsequently insuring survival with complex strategies of earth moving and seasonal management. This three-part model helps explain the development of the Sinú culture. Most likely, population pressure in the rolling savannas promoted demographic growth in floodplain seasonal wetlands, where intensification was through earth moving made possible by a hierarchical social and political organization, like the Panzenú, Fincenú and Zenufana chiefdoms observed in the Sinú area at the times of the conquest.

THE TAIRONA-KOGI CHIEFDOMS OF THE CARIBBEAN COAST AND SIERRA NEVADA DE SANTA MARTA MOUNTAIN

The Sierra Nevada de Santa Marta (SNSM) is the northern geological outlier of the Andean Mountain Chain and one of the most complex ecosystems in the world. It is a massive mountain of pyramidal shape facing the tropical Caribbean Sea. Reaching 5,775 masl, it is the highest mountain in the world so close to an ocean—only 48 km from the modern shoreline. It is Colombia's highest mountain with permanent glaciers. And due to its isolation from other highlands, and its great vertical climatic variability, it is characterized by extreme biological endemism. Consequently, it has attracted scientific studies since

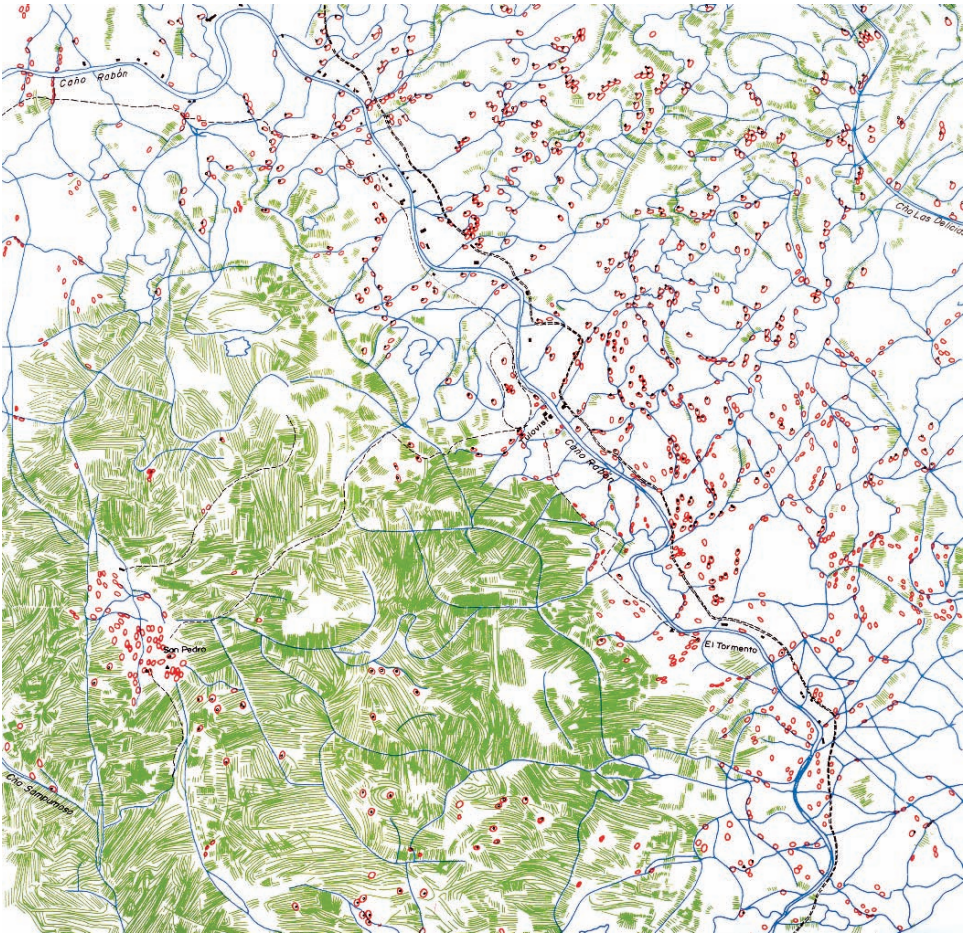


Figure 22.5. Map of the agricultural ridge fields (green) and platforms (red) in the middle Caño Rabón. Area shown is 49.45 m². (After Plazas et al. 1993:49)

the nineteenth century (Reclus 1881; Simons 1879, 1881; Allen 1900; Todd and Carriker 1922; van der Hammen and Ruiz 1984; Strewe and Navarro 2004; Hooghiemstra and van der Hammen 2004).

The SNSM is striking not only for its ecosystems diversity, that ranges from tropical bays to frigid glaciers, but also for the vertical stacking of its systems, and their decreasing horizontal variation with altitude, as in other parts of the Andes. The general explanation is that the horizontal and vertical ecological variation is a consequence of climatic factors such as patterns of wind and marine currents that affect the mountain differently. For example, the region of the lower Gaira River drainage is affected by fohn-type winds that dry the area between the mountains and the sea (western side of the SNSM) (Figure 22.6). In contrast, the Tairona Park region is affected by winds that run from the sea to the mountain (Herrman 1984) or in the case of the upper Buritaca, by mountain valley winds. This wind variation affects the precipitation and consequently, the vegetation. Precipitation throughout the SNSM varies greatly as well, with altitude and wind patterns. In regard to vegetation zones, for example, the region of Gaira is



Figure 22.6. General view of lower Gaira floodplain. The hills have xerophitic vegetation. (Augusto Oyuela-Caycedo)

mainly tropical thorn woodland or semi-deciduous lowland forest (Cleef et al. 1984). Tairona Park vegetation changes gradually from west to the east, at the same altitude (0–500 masl), from tropical thorn woodland, to very dry tropical forest, to equatorial rainforest. In contrast, the upper Buritaca has an Andean rainforest known as upper montane rain forest (Cleef and Rangel 1984).

Topographic variation can be illustrated by considering slope within the regions under archaeological analysis. For example, Gaira is characterized by landscape inclination below 20%, but with the surrounding hills between 20 to 40%. In contrast, small floodplains and the end of the bays surrounded by hills with slopes between 60 to 80% characterize the Tairona Park. The upper Buritaca is located in a landscape where most of the terrain is between 60% to more than 80% of slope (Bartels 1984). Furthermore, the Gaira region is located on the littoral in an area of deep open bays with sandy and muddy floors, which are seasonally affected by the Magdalena River sediments. Tairona Park is characterized by several harbors with coral and rock floors that are affected by deep currents abundant in phytoplankton, that makes it one of the richest fishing areas of northern Colombia (Hernandez 1986).

Great ecological variation, however, is typical of the Andes generally, where unique combinations of temperature, precipitation, wind patterns, and landscape morphology create unique niches of alpha and beta diversity. Significantly, in the SNSM, our understanding of the distribution of rainforest and pre-Hispanic human communities is still problematic. The only rainforest that currently exists is restricted to the northwest corner of this pyramidal mountain, in valleys like the upper Guachaca, Buritaca, and Don Diego rivers (Figures 22.7, 22.8), the same area with the only pre-Hispanic urban settlements, with high residential density. These settlements consist of hundreds of terraces at intersections in a network of stone-paved roads (Oyuela-Caycedo 1990; Herrera 2000). In contrast, the northeast, south and most of the west side of the SNSM lacks gallery forest, as well as archaeological settlements comparable to those in the northwest (Figures 22.9, 22.10). The



Figure 22.7. General view of the tropical cloud forest of the upper Buritaca Valley. The main platform of the archaeological site of Ciudad Perdida is located at the center. (Augusto Oyuela-Caycedo)



Figure 22.8. General view of the ridge where Ciudad Perdida is located under the canopy; the central opening is the main terrace of Ciudad Perdida. (Augusto Oyuela-Caycedo)



Figure 22.9. The upper Palomino river valley from the archaeological site of Nebiñi (Jaguar Creek). Deforestation is the result of human action since prehispanic times up to the present by the Kogi Indians. (Augusto Oyuela-Caycedo)



Figure 22.10. Archaeological terrace at Nebiñi, close to 1,400 masl. Note projected slabs at the edge of the terrace and menhir beside human scale. (Augusto Oyuela-Caycedo)

northeast and east of the SNSM is where indigenous populations such as the Kogi and Ijka live today (Oyuela-Caycedo 1991, 1998; Reichel-Dolmatoff 1950, 1951a, b). The south and west were colonized for agricultural and cattle production from the seventeenth century on, and in the eighteenth century, a small population of English were granted rights to settle by the Spanish crown (Barros Blanco 1996).

The question is how can we explain the persistence of rainforest in an area where previous human occupation was so dense in such a delicate environment of steep slopes and rapid erosion? Most of the archaeological evidence of the hundreds of archaeological settlements of the Tairona culture are found in this northwest part of the SNSM. The rest of the SNSM is devastated (Cavelier et al. 1998), reduced to small fragmented patches of rainforest where no evidence of complex archaeological occupation exists, but where indigenous populations live, up to the present.

I believe that the prehistory and ecology of the SNSM rainforest can be understood from an historical ecology approach (see Chapters 11 and 12 in this volume for a discussion of this concept). The reduction of the rainforest to fragmented ridges in the indigenous territories can also be understood with a historical ecological study of its past.

A HISTORY OF HUMAN COLONIZATION, AD 600–1500

I believe that a religious movement that included peoples with different languages and from diverse political units (Reichel-Dolmatoff 1954a, b; Reichel-Dolmatoff and Dussan 1955; Mason 1931, 1936, 1939; Oyuela-Caycedo 1986a) produced the expansion of the “Tairona culture”. Tairona culture was a religious complex that promoted colonization of the SNSM. Its development was based on religious cult centers that were built in contrasting environments, beginning in the lowlands but gradually including centers at higher elevations. This created a network for resource exchange and specializations correlating with the particularities of climatic and altitudinal variation as well as the availability of raw materials (for a more detailed explanation see Oyuela-Caycedo 2001; Hoopes 2005). The pattern of expansion conforms to a frontier model of colonization in which the rainforest became fragmented and restricted to certain ridges of the mountain.

Our knowledge of the archaeology of the SNSM is limited to three regions. The best chronological sequence of artifacts and settlement patterns is in the lower Gaira region (Oyuela-Caycedo 1987b, 1989, 1995b). The sequence of occupation goes from at least 500 BC up to the present with evidence for continual occupation. In the Tairona Park region available evidence indicates human occupation from around 500 BC to the present (see Oyuela-Caycedo 1986b; Langebaeck and Dever 2002). For the upper Buritaca evidence begins in the tenth century AD, and continues until the seventeenth century (Herrera de Turbay 1984, 1985; Oyuela-Caycedo 1986c, 1987a, 1995b, 2001). Differences among the three sequences supports the argument for a process of colonization of the SNSM that expanded gradually from the lowlands to the highlands reaching its highest impact – around 2,000 masl – no earlier than conquest times.

It is likely that the SNSM had dispersed populations in the highlands, perhaps even hunter-gatherer groups during the last half of the first millennium BC. However, evidence reveals small villages along the bays and coastline that depended on agriculture and fishing. The settlement pattern shifted after a catastrophic environmental crisis around AD 500–550, just before the occupation of the Mamoron archaeological site (AD 550–800) as well as the site of Frontera in the middle Buritaca River. This time period also seems to

be related to a dry phase that coincides with the desertification of the Guajira at the end of the El Horno complex (see Reichel-Dolmatoff and Dussan 1951; Bray 1995). There also are data to support a massive uplift of the SNSM around this time, related to the disappearance of an estuary located in the lower Gaira area and Rodadero Bay. We know that the shoreline became more volatile as indicated by the history of the estuarine environments (see Oyuela-Caycedo 1996) of the Ciénaga de Santa Marta. Furthermore, evidence from bays like Cinto reveal episodes of massive flooding, sealing coastal settlements such as Nahuange, Cinto, Gairaca, and lower Buritaca with heavy colluvial materials, and ending the early occupations. Later the locations were reoccupied but they continue to suffer similar disasters in modern times.

Following the catastrophic environmental crisis of the sixth century the SNSM witnessed extremely rapid population growth and colonization in the northern and western drainage. Terrace systems permitted the construction of small towns on sheer mountain slopes that were linked by a network of steep roads. This is when material culture appears to have become standardized, coinciding with the rise of specialist centers for pottery production, salt extraction, manufacture of ceremonial lithic artifacts, and metallurgical centers. These specialized centers supplied new colonies on the coast of the Sierra and between the lowland of the Ciénaga Grande de Santa Marta and the west of the Sierra Nevada (Reichel-Dolmatoff 1953; Oyuela-Caycedo 2001).

After AD 900 settlement patterns in the lower Gaira, Tairona Park, and upper Buritaca are similar, with groups concentrated into nucleated settlements. Hundreds of settlements have been discovered that date later than the ninth century; all of them share the same religious icons in metal, ceramic and stone artifacts. Two of the largest sites have urban characteristics such as canalization of water, roads, terraces, and obvious urban planning. The first is Pueblito (Figure 22.11) located in Tairona Park. The other is Ciudad Perdida (Figures 22.12, 22.13, 22.14) located in the upper Buritaca. Both sites are settlements with monumental stone architecture, located in humid tropical forest. Their sequences of occupation are very similar, dating from the tenth to the end of the early seventeenth centuries. Together they represent the highest technological achievement in terracing and road construction in this very difficult landscape. Successful settlement in the tropical forest also seems to have involved management by selecting for specific species of palms.

The ecology of the upper Buritaca was intensively studied as part of the Ecoandes Project, coordinated by Thomas van der Hammen and Pedro M. Ruiz (1984). Transects were studied in detail, one on the Buritaca ridge between 500–3,300 masl, and a second across the upper Frio River from 3,300 to 4,100 masl. This research carefully considered human interventions using palynological as well as archaeological settlement pattern data (Herrera de Turbay 1984; Van der Hammen 1984). Settlement patterns of the upper Buritaca were mapped by intensive surveys, conducted later.

Several urban clusters have been found in the upper Buritaca that consist of collections of terrace groups, making it difficult to determine where a site begins and ends. Deep valleys cut one part of a settlement from another. The largest of the sites is Ciudad Perdida, built between 1,100–1,200 masl. The temperature is stable year-round with minor fluctuations between a maximum of 26 °C during the day and a minimum of 16.5 °C at night. The annual precipitation is approximately 4,000 mm. This carefully planned “city” is strategically located to dominate the Buritaca River Valley (for a discussion on Tairona urbanism see Aprile-Gnisset 1991: 33–113). It has 120 residential terraces, each with one or more circular house platforms of fine stone masonry where a large circular building formerly stood. These terraces are interconnected by a complex web of flagstone stairs and pathways



Figure 22.11. a. Main road of the archaeological site of Pueblito, Parque Tairona (before restoration in 1983).
b. The same main road after restoration by the Instituto Colombiano de Antropología in 1987. (Augusto Oyuela-Caycedo)



Figure 22.12. Terrace of the lower sector of Ciudad Perdida. (Augusto Oyuela-Caycedo)



Figure 22.13. Main road entrance that connects the lower sector with the principal terrace compound of Ciudad Perdida. (Augusto Oyuela-Caycedo)



Figure 22.14. a. Main sector of “living” terraces. See the architectural solution of the road adjacent to the terrace. b. Sequence of “living terraces” in the main sector of Ciudad Perdida. (Augusto Oyuela-Caycedo)

(Figure 22.14). Everything is linked by a simple systems of water drainage with channels designed to control water force as it ran down the steep slopes. Water runs slowly along the stone walls next to stairs and pathways to end in streams that dissect the site. In this way the Tairona controlled erosion, one of the major problems typically arising in steeply inclined environments (Serje de la Ossa 1984). If we suppose that a terrace (Figure 22.14b) represents one family unit, in contrast to the traditional western assumption that each

circular house platform equals a family unit, then we can estimate that this site probably had a population of between 400–600 persons living in an area of 18 ha.

The socio-political organization of Tairona culture during the early part of the sixteenth century consisted of relatively independent chiefdoms, each including a priestly class and a hierarchy of chiefs as well as specialists in arts and crafts (e.g., gold workers, semiprecious stone engravers, merchants). This arts and crafts specialization, coupled with intensive exchange of agricultural products, was possible because of the regional ecological diversity found in the SNSM. The diversity encouraged the development of centers of specialization and regions of production for items such as ceramics, lithic artifacts, and agricultural products. At last archaeologists are beginning to understand the ancient system as they reconstruct the web of roads and pathways that connected all of the sites (Oyuela-Caycedo 1987a, 1990; Herrera de Turbay 1985; Kurela 1993; Herrera 2000).

To facilitate the redistribution of products the different regional chiefdoms of the northeast SNSM built an extensive network of paths, bridges, and paved stairs. Decentralized political complexes coordinated the whole commercial enterprise for one or more of the mountainous valleys, as indicated for Ciudad Perdida. The primary products exchanged from the coastlands into the valleys were fish, salt, shells, cotton, tobacco, and manioc. From hot-moderate interior climates came beans, avocados, and fruits. The moderate-cold climate areas contributed coca leaves, potatoes, and sweet potatoes. The exchange of squash and corn occurred at many altitudinal levels as did the exchange of craft items (Herrera 1985). Corn was the staple in Ciudad Perdida where numerous grinding stones were scattered throughout the settlement. The presence of irrigation canals along the coast and garden terraces in the mountain indicates that the Tairona cultivated the land intensively; areas beside the sea were exploited seasonally for salt, and in places where ecological factors dictated low yields of fish, agriculture could be intensified.

Evidence of early occupation in the Buritaca region is from the coast with a site that seems to date from AD 600 until 900 (Wynn 1975). Frontera, another early occupation in the middle Buritaca, with C¹⁴ date as early as AD 660, probably suffered destruction by landslide, and subsequent rebuilding. Frontera is located at 500 masl while Ciudad Perdida lies at 1,100 masl (Cardoso 1986).

Pollen studies by the Ecoandes Project show that the whole upper Buritaca area was covered by rainforest prior to the ninth century, but around the end of the tenth century human occupation and deforestation began. C¹⁴ dates obtained from an excavation I conducted in 1982 confirm that the early occupation of Ciudad Perdida began around 950 ± 60 BP. There is a close relationship between palms and areas of human activity in the archaeological past. This relationship is born out at Ciudad Perdida where *Dictyocaryum schultzei* (ivory-nut palm) predominates in the neighboring rainforest. The importance of this palm is in construction of roofs and walls. A dense population of *Bactris* sp. at 920 masl also relates to Ciudad Perdida. This palm, known as “chonta”, was important for making archers’ bows and other tools. Its spines were used and its edible fruit is an outstanding source of oil and protein. The ecological studies demonstrate how greatly and well the SNSM chiefdoms managed their landscapes, protecting and improving them.

The center was occupied until the sixteenth century when the Spanish conquest began its processes of war and destruction. The effects were catastrophic for the native population, reducing their numbers to less than 1% of pre-Hispanic highs following 100 years of continuous warfare. The region seems to have been completely abandoned around AD 1630 ± 55, based on C¹⁴ dates from collapsed structures and garbage (Oyuela-Caycedo 1986c, 1987a). Soon vegetation expanded from the Buritaca and secondary ridges to cover

the remains of Ciudad Perdida. Cleef et al. (1984: 288–289, 384) recognize that the rain-forest of the upper Buritaca is the result of four hundred years of abandonment since the collapse of the indigenous chiefdoms.

The surviving natives who were not absorbed by Spanish control into the indigenous “resguardos” of the coast found refuge in the northeast of the SNSM, in the upper parts of other rivers like the Palomino and San Miguel where they continue to live, practicing traditional religious beliefs. This occupation has not allowed forest to recover or expand as in the Buritaca region.

FINAL COMMENTS

This chapter has stressed the importance of recognizing the complexity of the colonization process developed by lowland chiefdoms to expand into high-risk landscapes and seasonally variable areas of food production. Permanent and often dense settlement was possible because of agricultural and management techniques that reduced the risk of “living” in landscapes subject to seasonal flooding, plagued by poor soils, or by extreme erosion on steep gradients. The anthropogenic landscapes created were products of political systems that were able to mobilize large populations to live in difficult areas such as active floodplains or the tropical forest of the SNSM. Only with significant investment in technology and management—such as ridged fields, residential mounds, and water channels in the Sinú and San Jorge river valleys—could the areas be incorporated into the network of exchange that promoted high population densities. The same occurred in the SNSM with expansion onto steeper gradients through terrace and drainage construction as well as integration into a vertical interchange of goods with paved roads. After the conquest, both areas suffered rapid demographic decline. However, impact on the landscape was long-term, still visible where forests and other biocommunities have recovered. The archaeological nature of modern Colombian ecosystems is a footprint of its pre-Hispanic chiefdoms.

NOTES

1. In the archaeological literature it is more common to write *Sinú* for the ancient society, but various scholars, myself included, are also writing *Zenú*, based on the village names, province names and personal names recorded by the Spanish. For the sake of simplicity in this chapter, I write *Sinú*.
2. The Sinú and San Jorge region has two major seasons: rainy and dry. The first rainy period starts in late April–June, followed by a small dry month around July–August (Veranillo de San Juan). After this, precipitation increases until the end of November, reaching a peak in October. Then the rain stops in early December, with the driest season in January and February; in some years there is no precipitation at all during these months. This climatic regime changes the landscape drastically, from verdant November into dry January to March with lush green quickly replaced by dead grass. The bimodal climatic regime also has a strong impact on the availability of fish, turtles, fruits and every growth cycle, annual or perennial.

REFERENCES

- Adelaar, Willem F. H. and Pieter C. Muysken, 2004, *The Languages of the Andes*. Cambridge University Press, Cambridge.
- Allen, J.A., 1900, List of bats collected by Mr. H. Smith in the Santa Marta region of Colombia, with descriptions of new species. *Bulletin of the American Museum of Natural History* 13: 87–94.
- Aprile-Gniset, Jacques, 1991, *La Ciudad Colombiana*. Biblioteca Banco Popular, Bogotá.

- Bartels, G., 1984, Morphoclimatic belts of the Sierra Nevada de Santa Marta. In *La Sierra Nevada de Santa Marta (Colombia): Transecto Buritaca - La Cumbre*, Vol. 2, edited by T. van der Hammen and P. Ruiz, pp. 99–130. J. Cramer, Vaduz, Liechtenstein.
- Bartley, B. G. D., 2005, *The Genetic Diversity of Cacao and its Utilization*. CABI Pub., Wallingford, UK and Cambridge, MA.
- Barros Blanco, José Agustín, 1996, *Dos Colonizaciones del Siglo XVII en la Sierra Nevada de Santa Marta*. Archivo General de la Nación, Bogotá.
- Bonzani, Renée M., 1997, Plant diversity in the archaeological record: a means toward defining hunter-gatherer mobility strategies. *Journal of Archaeological Science* 24:1129–1139.
- , 1998, Learning from the present: the constraints of seasonality on foragers and collectors. In *Recent Advances in the Archaeology of the Northern Andes*, Monograph 39, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, pp. 20–35. The Institute of Archaeology, University of California, Los Angeles.
- Botiva Contreras, Alvaro, 1994, Arqueología de Rescate Oleoducto Vasconia-Coveñas. Colcultura Ican, Bogotá.
- , G. Cadavid, L. Herrera, A. M. Groot de Mahecha, and S. Mora., 1989, *Colombia Prehispánica, Regiones Arqueológicas*. Instituto Colombiano de Antropología. Bogotá.
- Bray, Warwick, 1995, Searching for the environmental stress: climatic and anthropogenic influences on the landscape of Colombia. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Recent Applications*, edited by Peter Stahl, pp. 96–112. Cambridge University Press, Cambridge.
- Carbonó, E., 1987, Estudio Etnobotánico entre los Kogui de la Sierra Nevada de Santa Marta. M.S. thesis in Systematics. Instituto de Ciencias Naturales, Museo de Historia Natural, Universidad Nacional de Colombia, Bogotá.
- Cavelier, J., T. M. Aide, C. Santos, A. M. Eusse and J. M. Dupuy, 1998, The savanization of moist forests in the Sierra Nevada de Santa Marta. *Journal of Biogeography* 25: 901–912.
- Cleef, A.M. and J. O. Rangel-Ch., 1984, La vegetación del páramo del noroeste de la Sierra Nevada de Santa Marta. In *La Sierra Nevada de Santa Marta (Colombia): transecto Buritaca - La Cumbre*, Vol. 2, edited by T. van der Hammen and P. Ruiz, pp. 203–266. J. Cramer, Vaduz, Liechtenstein.
- , J. O. Rangel-Ch., T. van der Hammen and R. Jaramillo-M., 1984, La vegetación de las selvas del transecto Buritaca. In *La Sierra Nevada de Santa Marta (Colombia): transecto Buritaca - La Cumbre*, Vol. 2, edited by T. van der Hammen and P. Ruiz, pp. 267–406. J. Cramer, Vaduz, Liechtenstein.
- Cook, Noble David, 1998, *Born to Die : Disease and New World Conquest, 1492–1650*. Cambridge University Press, New York.
- Cristiaa Granda, Rita Maria, 1996, The Status of Zenu Women: A Study of Gender Relations in Ancient Colombia. M.A. thesis. Faculty of Arts and Science, Trent University, Peterborough, Ontario.
- Cuadros, Hermes, 1990, Vegetación caribeña. In *Caribe Colombia*, edited by M. Jimeno, pp. 66–83. Financiera Eléctrica Nacional, Bogotá.
- Dahl, George, 1971, *Los Peces del Norte de Colombia*. INDERENA.
- Denevan, William M., 1992, The pristine myth: the landscape of the Americas in 1492. *Annals of the Association of American Geographers* 82(3):369–385.
- , 1976, *The Native Population of the Americas in 1492*. University of Wisconsin Press, Madison.
- , 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, New York.
- Fals Borda, Orlando, 1980, *Mompox y Loba, Historia Doble de la Costa*. Carlos Valencia Editores, Bogotá.
- Herrera, Antonio, 1936, *Historia General de los Hechos de los Castellanos en las Islas y Tierra firme del Mar Océano*. Tipografía de Archivos. Madrid
- Herrera, Leonor, 2000, ¿Por dónde pasan los caminos Tairona? In *Caminos Precolombinos, Las Vías, Los Ingenieros y Los Viajeros*, edited by Leonor Herrera and Marianne Cardale de Schrimpf. Instituto Colombiano de Antropología, Bogotá.
- Herrera de Turbay, L.F., 1984, La actividad agrícola en la Sierra Nevada de Santa Marta (Colombia): perspectiva histórica. In *La Sierra Nevada de Santa Marta (Colombia): Transecto Buritaca - La Cumbre*, Vol. 2, edited by T. van der Hammen and P. Ruiz, pp. 501–530. J. Cramer, Vaduz, Liechtenstein.
- , 1985, *Agricultura Aborigen y Cambios de Vegetación en la Sierra Nevada de Santa Marta*. Fundación de Investigaciones Arqueológicas Nacionales, Bogotá.
- Hernandez, A. R. (ed.), 1986, *Proyecto Piloto de Evaluación para el Desarrollo de las Pesquerías Artesanales en la Región de Santa Marta*. Editora Guadalupe Limitada/ CIID-Colciencias-FES, Bogotá.
- Hooghiemstra, Henry and Thomas van der Hammen, 2004, Quaternary Ice-Age dynamics in the Colombian Andes. Developing an understanding of our legacy. *Phil. Trans. R. Soc. Lond. B* 359: 173–181.

- Hoopes, John W., 2005, The emergence of social complexity in the Chibchan world of southern Central America and northern Colombia, AD 300–600. *Journal of Archaeological Research* 13: 1–47.
- Kopp, L. E., 1966, A taxonomic revision of the genus *Persea* in the western hemisphere. (*Persea*-Lauraceae). *Mem. New York Bot. Gard.* 14:1–120.
- Kurella, Doris, 1993, *Handel und soziale Organisation im vorspanischen nördlichen Andenraum. Zur politischen Ökonomie subandiner Häuptlingstümer im Gebiet des ehemaligen Nuevo Reino de Granada vor der Eroberung durch die Spanier im frühen 16. Jahrhundert.* Mundus Reihe Alt-Amerikanistik, Band 9. Holos Verlag, Bonn.
- Langeback, C. H. and A. Dever, 2002, Estudio regional en las bahías del Parque Tairona: arqueología, medio ambiente y desarrollo de sociedades prehispánicas. *Boletín de Arqueología* 17: 2–16.
- Le Roy Gordon, B., 1957, *Human Geography and Ecology in the Sinú Country of Colombia.* University of California Press, Berkeley.
- López Castaño, Carlos E., 1998, Evidence of Late Pleistocene-Early Holocene occupations in the tropical lowlands of the middle Magdalena Valley. In *Recent Advances in the Archaeology of the Northern Andes*, Monograph 39, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, pp. 1–9. The Institute of Archaeology, University of California, Los Angeles.
- , 1999, *Ocupaciones tempranas en las tierras bajas tropicales del valle medio del río Magdalena Sitio 05-yon-002, Yondo-Antioquia.* Fundación de Investigaciones Arqueológicas Nacionales, Banco de la República, Bogotá.
- MacRae, W. D. and G. H. Towers, 1994, An ethnopharmacological examination of *Virola elongata* bark: a South American arrow poison. *Journal of Ethnopharmacology* 12:75–92.
- Mason, J. Alden, 1931, *Archaeology of Santa Marta, the Tairona Culture*, Part 1. Anthropological Series, Vol. XX, No.1. Field Museum of Natural History, Chicago.
- , 1936, *Archaeology of Santa Marta, the Tairona Culture*, Part 2, Section 1, Publication 358. Anthropological Series, Vol. XX, No.2. Field Museum of Natural History, Chicago.
- , 1939, *Archaeology of Santa Marta, the Tairona Culture*, Part 2, Section 2, Publication 446. Anthropological Series, Vol. XX, No. 3. Field Museum of Natural History, Chicago.
- Oyuela-Caycedo, Augusto, 1986a, De los Tairona a los Kogi: una interpretación del cambio cultural. *Boletín Museo del Oro* 17: 32–43.
- , 1986b, Contribución a la periodización cultural en el litoral del Parque Tairona. *Boletín de Arqueología* 1: 24–28.
- , 1986c, Excavación de un basurero en Ciudad Perdida. *Boletín de Arqueología* 1: 28–37.
- , 1987a, Aspectos culturales de las secuencias locales y regionales en los Tairona. In *Chiefdoms in the Americas*, edited by Robert D. Drennan and Carlos A. Uribe, pp. 213–228. University Press of America, Lanham.
- , 1987b, Gaira: introducción a la ecología y arqueología del litoral de la Sierra Nevada de Santa Marta. *Boletín Museo del Oro* 19:35–55.
- , 1989, Investigaciones Arqueológicas en la Región Baja del Río Gaira, Departamento del Magdalena. Ms. on file. Fundación de Investigaciones Arqueológicas del Banco de la República, Bogotá.
- , 1990, Las redes de caminos prehispánicas en la Sierra Nevada de Santa Marta. In *Ingeniería Prehispánica*, edited by S. Mora, pp. 47–72. Instituto Colombiano de Antropología and Fondo Eléctrico Nacional (FEN), Bogotá.
- , 1991, Ideology and structure of gender spaces: the case of the Kaggaba Indians. In *Gender Archaeology*, edited by D. Walde and N. D. Willows, pp. 327–335. Proceedings of the 22nd Annual Conference of the Archaeological Association of the University of Calgary. University of Calgary.
- , 1995a, Rocks vs clay: the evolution of pottery technology in the case of San Jacinto 1, Colombia. In *The Emergence of Pottery*, edited by William K. Barnett and John W. Hoopes, pp.133–144. Smithsonian Institution Press, Washington, D.C.
- , 1995b, Centralización e integración en la Sierra Nevada de Santa Marta. *Boletín Museo del Oro* 38–39:113–133.
- , 1996a, Gerardo Reichel-Dolmatoff: 1914–1994. *American Antiquity* 61 (1): 52–56.
- , 1996b, The study of collector variability in the transition to sedentary food producers in northern Colombia. *Journal of World Prehistory* 10 (1): 49–92.
- , 1997, Prologo al Gran Jaguar. In *Arqueología de Colombia* by Gerardo Reichel-Dolmatoff, pp.xi–xix. Segunda Edición. Presidencia de la República de Colombia, Biblioteca Familiar Colombiana, Bogotá.

- _____, 1998a, Ideology, temples, and priests: change and continuity in house societies in the Sierra Nevada de Santa Marta. In *Recent Advances in the Archaeology of the Northern Andes*, Monograph 39, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, pp.39–53. The Institute of Archaeology, University of California, Los Angeles.
- _____, 1998b, Bibliography of Gerardo Reichel-Dolmatoff: 1943–1997. In *Recent Advances in the Archaeology of the Northern Andes*, edited by Augusto Oyuela-Caycedo and J. Scott Raymond, Monograph 39, pp.ix–xv. The Institute of Archaeology, University of California, Los Angeles.
- _____, 2001, The rise of religious routinization. The study of changes from shaman to priestly elite. In *Mortuary Practices and Ritual Associations: Shamanic Elements in Prehistoric Funerary Context in South America*, edited by J. E. Staller and E. J. Currie, pp. 1–18. Archaeopress Publishers of British Archaeological Reports. Oxford.
- _____ and René M. Bonzani, 2005, *San Jacinto 1: A Historical Ecological Approach to an Archaic Site in Colombia*. University of Alabama Press, Tuscaloosa.
- Parsons, James J., 1952, The Settlement of the Sinu Valley of Colombia. *Geographical Review* 42: 67–86.
- _____ and William A. Bowen, 1966, Ancient ridged fields of the San Jorge River floodplain, Colombia. *Geographical Review* 56 (3): 373–343.
- _____, 1980, Europeanization of the savanna lands of northern South America. In *Human Ecology in Savanna Environments*, edited by David Harris, pp. 267–292. Academic Press, London.
- Plazas, Clemencia and Ana Maria Falchetti, 1990, Manejo hidráulico Zenú. In *Ingenierías Prehispánicas*, edited by Santiago Mora. Fondo Fen Colombia and Instituto Colombiano de Antropología. Bogotá.
- _____, Ana Maria Falchetti, Juanita Sáenz Samper and Sonia Archila, 1993, *La Sociedad Hidráulica Zenu*. Banco de la Republica. Bogotá.
- Reclus, E., 1881, *Voyage á la Sierra-Nevada de Sainte Marthe*. Librairie Hachette & Cie, Paris.
- Reichel-Dolmatoff, Gerardo, 1957, Momil: a Formative sequence from the Sinu Valley, Colombia. *American Antiquity* 22 (3): 226–234.
- _____, 1950, Los Kogi: una tribu de la Sierra Nevada de Santa Marta, Colombia, Tomo I. *Revista del Instituto Ethnológico Nacional*, 4.
- _____, 1951a, *Los Kogi: una tribu de la Sierra Nevada de Santa Marta-Colombia*, Tomo II. Editorial Iqueima, Bogotá.
- _____, 1951b, *Datos Histórico-Culturales sobre las Tribus de la Antigua Gobernación de Santa Marta*. Banco de la República, Bogotá.
- _____, 1953, Contactos y cambios culturales en la Sierra Nevada de Santa Marta. *Revista Colombiana de Antropología* 1: 15–122.
- _____, 1954a, Investigaciones arqueológicas en la Sierra Nevada de Santa Marta. Partes 1 y 2. *Revista Colombiana de Antropología* 2: 145–206.
- _____, 1954b, Investigaciones arqueológicas en la Sierra Nevada de Santa Marta. Parte 3, Sitios de contacto español en Pueblito. *Revista Colombiana de Antropología* 3: 139–170.
- _____, 1965, *Colombia*. Thames and Hudson, London.
- _____, 1997, *Arqueología de Colombia*. Segunda Edición. Presidencia de la República de Colombia, Biblioteca Familiar Colombiana, Bogotá.
- _____ and Alicia Dussan de Reichel, 1958, Reconocimiento arqueológico de la hoya del río Sinu. *Revista Colombiana de Antropología* 6: 31–160.
- _____ and Alicia Dussan de Reichel, 1951, Investigaciones arqueológicas en el Departamento del Magdalena, Colombia en 1946–1950. Parte I: Arqueología del Río Ranchería. *Boletín de Arqueología* 3:19–208.
- _____ and Alicia Dussan de Reichel, 1953, Investigaciones arqueológicas en el Departamento del Magdalena, Colombia: 1946–1950. *Divulgaciones Etnológicas* 3 (4): 1–122.
- _____ and Alicia Dussan de Reichel, 1955, Investigaciones arqueológicas en la Sierra Nevada de Santa Marta. Parte 4, Sitios de habitación del Período Tairona II, en Pueblito. *Revista Colombiana de Antropología* 4: 191–245.
- _____ and Alicia Dussan de Reichel, 1956, Momíl, Excavaciones el Sinú. *Revista Colombiana de Antropología* 5: 109–334.
- _____ and Alicia Dussan de Reichel, 1991, *Arqueología del Bajo Magdalena, Estudio de la Cerámica de Zambrano*. Biblioteca Banco Popular, Bogotá.
- Rosa, Nicolas de la, 1975, *Floresta de la Santa Iglesia Catedral de la Ciudad y Provincia de Santa Marta*. Biblioteca Banco Popular, Bogotá.

- Serje de la Ossa, M., 1984, Organización urbana en Ciudad Perdida. *Cuadernos de Arquitectura*. Escala No. 9, Bogotá.
- Simons, F. A. A., 1879, Notes on the topography of the Sierra Nevada de Santa Marta. *Proceedings of the Royal Geographical Society* 1: 689–694.
- , 1881, On the Sierra Nevada de Santa Marta and its watershed (State of Magdalena, U.S. of Colombia). *Proceedings of the Royal Geographical Society* 3: 705–723.
- Simon, Fray Pedro, 1981, *Noticias Historiales de las Conquistas de Tierra Firme en las Indias Occidentales*. Vol. 5. Biblioteca Banco Popular, Bogotá.
- Smet, P. A. de, 1985, A multidisciplinary overview of intoxicating snuff rituals in the western hemisphere. *Journal of Ethnopharmacology* 13: 3–49.
- Strewe, R. and C. Navarro, 2004, New and noteworthy records of birds from the Sierra Nevada de Santa Marta region, north-eastern Colombia. *Bull. B.O.C.* 124: 38–51.
- Thomson, R., 1894, Report on the Cultivation of Cacao, Bananas and India-Rubber in Districts Surrounding the Sierra Nevada de Santa Marta. Foreign Office, London. Notes from letter by Basil G. Bartley to the author, 13 January 1998. Manuscript on file.
- Todd, W.E. C., and M.A. Carriker, Jr., 1922, *Birds of the Santa Marta Region*. Annals of the Carnegie Museum, 14. Pittsburgh.
- van der Hammen, T., 1984, Datos sobre la Historia de Clima, Vegetación y Glaciación de la Sierra Nevada de Santa Marta. In *La Sierra Nevada de Santa Marta (Colombia): transecto Buritaca - La Cumbre*, Vol. 2, edited by T. van der Hammen and P. Ruiz, pp. 561–573. J. Cramer, Vaduz, Liechtenstein.
- van der Hammen, T. and P. T. Ruiz (eds.), 1984, *La Sierra Nevada de Santa Marta (Colombia): Trancecto Buritaca-la Cumbre*. J. Cramer, Vaduz, Liechtenstein.
- Wynn, J. T., 1975, Buritaca Ceramic Chronology: A Seriation from the Tairona Area, Colombia. Ph.D. dissertation. Department of Anthropology, University of Missouri.

The Prehistory of Venezuela – Not Necessarily an Intermediate Area

RODRIGO NAVARRETE

INTRODUCTION

Venezuela comprises a 91,205 km² territory in northernmost South America, sharing borders with northern Brazil, Guiana and Colombia. Its location was strategic in ancient times (as today) for interaction with the Caribbean islands, Amazonian lowlands, and the Andes. Venezuela's biodiversity encompasses a contrastive variety of environments, which are, from north to south: the Caribbean coast, the coastal mountain chain, the northernmost Andes, the llanos, the Orinoquía, and the tropical forest (Figure 23.1). This landscape, marked by tropical seasonality, promoted regional cultural development and diversity and complex economic and sociopolitical interaction networks (Arroyo et al. 1999; Cruxent and Rouse 1982).

Instead of understanding local developments in their own terms, early scholarship (e.g., Nomland 1935; Osgood and Howard 1943) viewed Venezuela as a pathway to fill out holes between key cultural cores in western and eastern South America. The “H theory” represented Venezuela as a horizontal barrier to as well as a conduit for movements connecting Mesoamerica to the Andes, and the Amazon to the Caribbean. The Valencian and Middle Orinoquian cultures were considered genuine Venezuelan examples of this cultural confluence, combining and diffusing highland and lowland traits (Kidder 1944; Osgood and Howard 1943).

Subsequently, Venezuela was defined as a territory divided geographically and stylistically by two influences: one influence from the Mesoamerican and Andean cores (the western influence), and another influence from the lowland and Caribbean tropical peripheral cultures (the eastern influence) (see Osgood and Howard 1943; Cruxent and Rouse 1982; Sanoja 1981; Wagner 1988). This west-east division was sharp during the early ceramic occupation, characterized by Cruxent and Rouse (1982) as Period II (1050 BC-AD 350) with the eastern Saladoid and Barrancoid series and the western Tocuyanoid. During

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

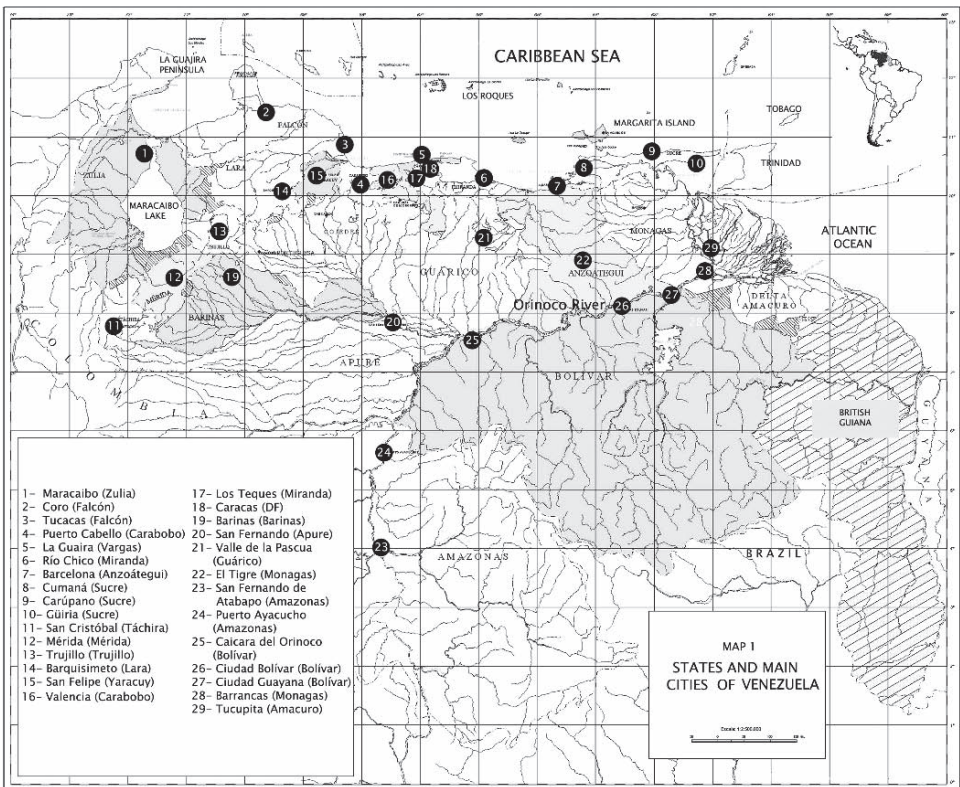


Figure 23.1. Map of states and cities in Venezuela. (Courtesy: Juan Carlos Rincón)

Period III (AD 350–1150), the dichotomy was emphasized by local cultural developments. In Period IV (AD 1150–1500) there were dynamic population movements and both poles were moving and integrating with each other. Figure 23.2 presents a chronological chart of Venezuela.

Beginning in the 1960s, cultural ecology emerged in American archaeology. Interpretation of tropical lowland prehistory was polarized between those arguing for a strong environmental determinism (Meggers 1971) and those advocating a cultural-environmental possibilism (Lathrap 1970) (Navarrete 2004; Vargas 1990). Meggers (1971, 1983), in the environmental determinism school, supposes a colonization of the lowlands by highland people, populating first the upper Amazon and diffusing to the rest of the Amazon basin, resulting in “Tropical Forest Culture”. She sees simple tribal organizations with rudimentary technology and incipient levels of settlement and productive strategies developed from an efficient adaptation to a particularly limiting environment. Amazonian exuberance paradoxically hides a very low ecological and nutritional carrying capacity for the maintenance of dense population, severely limiting cultural evolution. Subsistence is based on low-protein manioc production and agriculture limited to slash-and-burn, a technology that promotes a constantly mobile and fissional settlement pattern. The only productive environment was the “varzea” which, in contrast to “terra firme,” provides a scarce river environment with higher capacity, enriched by seasonal accumulations of nutrient-rich

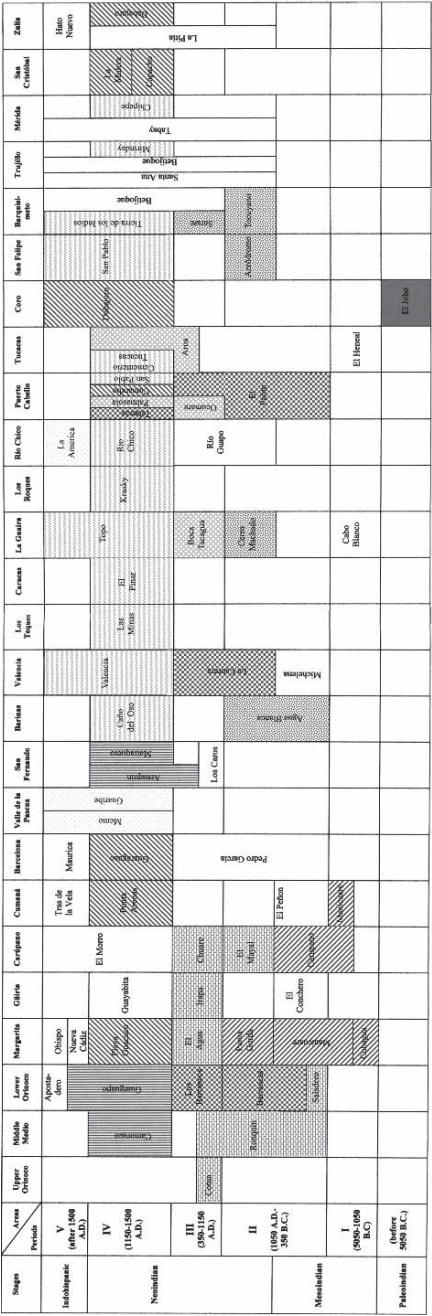


Figure 23.2. Chronological chart. (Rodrigo Navarrete)

highland alluvial deposits along the main rivers. On these flood plains Meggers supposes denser populations possible, although still limited over the long run.

Paradoxically, Meggers' theory influenced Venezuelan Marxist archaeology, due to its methodological congruency and materialistic perspective (Navarrete 2004). Marxist archaeologists inherited Meggers' "ceramologic" and typological tradition, such as the Ford Method (1969), and applied it to Venezuelan archaeology, especially to the Orinoco and eastern coast (Vargas 1979, 1981; Sanoja 1979), to develop an integrated reconstruction of Venezuelan prehispanic history with a socioeconomic and dialectical interpretation. These Marxist archaeologists linked temporal-spatial typologies and contexts and correlates of social production and activities, arguing that tropical modes of production were environmentally limited (Vargas 1981).

On the other side of this issue of environmental potential and cultural complexity, Lathrap influenced Venezuelan cultural history. His combination of chronology and diffusion of stylistic traits, adding linguistic, ethnographic and ecological information, and his emphasis on pottery modes instead of types, fit with Rouse's (1939) methodology for Venezuela. Lathrap (1970) stressed environmental possibilism and historical particularism, which offered a more flexible and historical perspective. Lathrap focused on the "varzea" as a nuclear Amazonian environment for cultural development. He assumed a "Tropical Forest Culture" with autochthonous origin, implying that South American cultures, including the highlands, originated in the lowlands from an equatorial common hearth.

Lathrap postulated successive migratory movements from the middle Amazon, resulting from the pressure put on earlier groups by newer ones in their competition for the varzeas, pushing the earlier agriculturalists to the margins, and even beyond the Amazonian basin, where they modified their economies and developed distinctive regional cultural traditions. For Venezuela, there were three main population movements, identified by ceramic remains and associated by Lathrap with ethnohistorical and linguistic patterns. First, an early Saladoid movement representing a Proto-Arawakan linguistic stock around 2000 BC, divided in two local movements: an early plastic decoration tradition expressed by the coastal Río Guapo, and a latter polychrome painting tradition related to Saladero. A second Barrancoid movement came to the Orinoco later, carried by another Proto-Arawakan people around 500 BC. A third and later Carib expansion began around AD 500: the Arauquinoid penetration. Compatible with Rouse and Cruxent, in part because they influenced Lathrap's chronological construction, this model was easily embraced by those favoring a more local and Amazonian origin for Venezuelan cultures, such as Alberta Zucchi, Erika Wagner, Kay Tarble, Lilliam Arvelo, and José Oliver.

THE PEOPLING OF NORTHERN SOUTH AMERICA

Cultural historians call this period "Paleoindian" and Marxist archeologists refer to it as "Hunters of Great Mammals in a Appropriating Way of Life" (Cruxent and Rouse 1982; Sanoja and Vargas 1979). The peopling of Venezuelan territory constitutes some of the earliest human occupations on the whole American continent and comprises unique technological arrangements and developments. During the Late Pleistocene, human groups, possibly coming from the north, arrived and occupied the northwestern Venezuelan coast. Sites such as Taima-Taima, Muaco, and El Jobo in the coastal region of Venezuela's Falcón State are emblematic in the debate regarding the antiquity of the initial peopling of the

Americas. Conservative estimates assume that these populations arrived to the area at least 13,000 BP (Oschenius and Gruhn 1979).

A general theory proposes that the first inhabitants of the continent arrived from Asia via the Bering Strait. These groups were specialized hunters of the great Pleistocene mammals who migrated following their main source of sustenance. Arriving at the North American Great Plains, they specialized in mastodon hunting and developed a stone projectile technology known as the Clovis Tradition, dated to 10,800 to 11,200 radiocarbon years, from which the rest of the continent was populated, as diverse technological variations developed.

Venezuelan sites challenge this theory. First, the percussion technology characteristic of north coastal Venezuela, known as Joboid, is formally different from Clovis, which makes it unlikely that a Clovis origin can account for all of the earliest American cultures. Second, some of the Taima-Taima dates are earlier than Clovis dates from North America, putting significant doubt on the accepted population model. Third, the early South American dates may evidence multiple early population waves following different entry routes and bearing distinctive cultures (Oliver and Alexander 2003).

The ancient Falcón inhabitants coexisted with extinct megafauna such as mastodons (Haplomastodon), megatheres (Megatherium), glyptodonts (Glyptodon), and toxodonts (Toxodon), mammals that provided their fundamental sustenance. At Taima-Taima, El Jobo Complex projectile points have been found associated with these fossils, and date between 12,980 and 14,200 years BP. The Joboid series lithic instruments, named after alluvial terraces on the Pedregal River, reveal the evolutionary and distinctive technological sequence of artifact variations and transformations for the first Venezuelan hunters. The series comprises four consecutive complexes, with different artifacts made primarily on quartzitic sandstone, elaborated by percussion, and related to different hunting strategies. The first, Camare, dating to ca. 22,000-20,000 years BP, includes large bifacial polyvalent knives, scrapers and choppers, probably used in direct body-to-body hunting by hunt teams that cornered the animal and banded and stubbed the prey with hafted artifacts or long, sharpened sticks. The second, Las Lagunas, ca. 20,000-16,000 years BP, presents smaller triangular and elongated bifacial instruments, hafted in spears, utilized in a semi-direct hunting strategy. It is followed by El Jobo, ca. 16,000-9000 years BP. The distinctive Joboid projectile points are long narrow lanceolate lenticular section bifacial points, to be used with a spear thrower, which provided higher precision and speed for piercing the animal skin and allowed individual long distance hunting of megafauna or smaller and faster species such as deer and large rodents. Finally, in Las Casitas, ca. 9000-5000 years BP, while other instruments continued in use, the peduncular arrow point with occasional retouched edges appeared to be hafted in the spear and shot with a bow (Fundación Polar 1988).

Other findings in Venezuela indicate distinctive early lithic traditions, showing early regional cultural diversity. The Manzanillo (Zulia State) fossil wood tools, possible choppers and scrapers (Cruxent 1982), the Tupukén and Cueva del Elefante (Bolívar State) jasper and basalt flat-convex scrapers (Fundación Polar 1988), and the Bajo Caroní and upper Orinoco choppers and primary flakes (Barse 1990, Sanoja and Vargas 1995) are some examples.

Their economy could be defined as appropriating, obtaining resources directly from the environment without implementing controlled production techniques. This supposes that these bands also developed other productive strategies such as fruit gathering, seafood gathering, and fishing—but evidence is not conclusive about this. Since their way of life seemed to be defined by the movement of the great mammals, distributional evidence

suggests they practiced restricted nomadism, with mobile settlements within restricted territories following natural niches and seasonal cycles. They had a low population density on the landscape, likely organized in family micro-bands of 12 to 35 people. Although they were intrinsically egalitarian, there was likely a sexual and social division of labor (Fundación Polar 1988).

INTERPRETING THE MESOINDIAN PERIOD

Venezuela's great cultural diversity seems to consolidate during the Mesoindian or Specialized Hunting, Gathering and Fishing Period, equivalent to the Archaic. The Mesoindian Period is dated between 7000-5000 years BP to about 1000 BC. During this time there occurred a transition from the bands of great mammal hunters to the tribal socio-economic formation (Sanoja and Vargas 1995). The transition was prompted, at least in part, by environment.

The Early Holocene environmental changes strongly modified Venezuelan societies. Global temperatures rose; megafauna was extinguished; water level inundated large land extensions previously occupied; vegetal coverage retracted in inter-tropical areas; new ecological niches emerged; and the inlands and mountain chains diversified. Human groups were forced to move to other territories, to interact with new environments, and to modify their productive strategies and social organization. All this represented a challenge because they needed new exploitive means to subsist but, at the same time, the new scenario offered new and more diverse resources. People specialized in new productive strategies, diversified their technologies, and generated differentiated cultural productions regionally (Sanoja and Vargas 1995).

During this period, hunting, gathering, and fishing activities prevailed, but probably with a more substantial special emphasis than earlier. These diverse economic and socio-cultural strategies can be grouped into seven productive, ecological, geographical and technological variants as follows (here and hereafter, principal sites mentioned in the text are found in Figure 23.3).

1. *Sea shore and deep water fishermen and sea shell gatherers along the eastern Venezuelan coast.* They dominated navigation techniques and also occupied islands surrounding the Sucre coast (Margarita, Cubagua, Manicuaire, Trinidad and Tobago), and the Lesser Antilles. Sites—all of them characterized by huge midden concentrations of consumed shell—formed the Manicuaroid series (Cruxent and Rouse 1982). This series represents a transitional sequence of technological increase and diversification from shell instruments up to the appearance of pottery during the tribal formation. Manicuaroid's first complex, Cubagua, around 2325 BC, comprises lithic flakes, elaborated harpoons, lithic choppers used to open shells, two-pointed polished stone artifacts, shell and bone projectile points, hooks, and disks. The second, Manicuaire, 1730-1190 BC, includes shell (*Strombus gigas*) gougers for manufacturing boats; shell, polished stone and bone beads and pendants; and stone net weights. Punta Gorda and Carúpano, in addition to the previous artifacts, contain scarce pottery, which evidences an early relationship with tribal Neoindians from inland (Fundación Polar 1988).
2. *Large shell middens along the Venezuelan coast produced by coastal sea shell gatherers and fishermen.* Sites such as La Pitía (Zulia State) and Maurica or

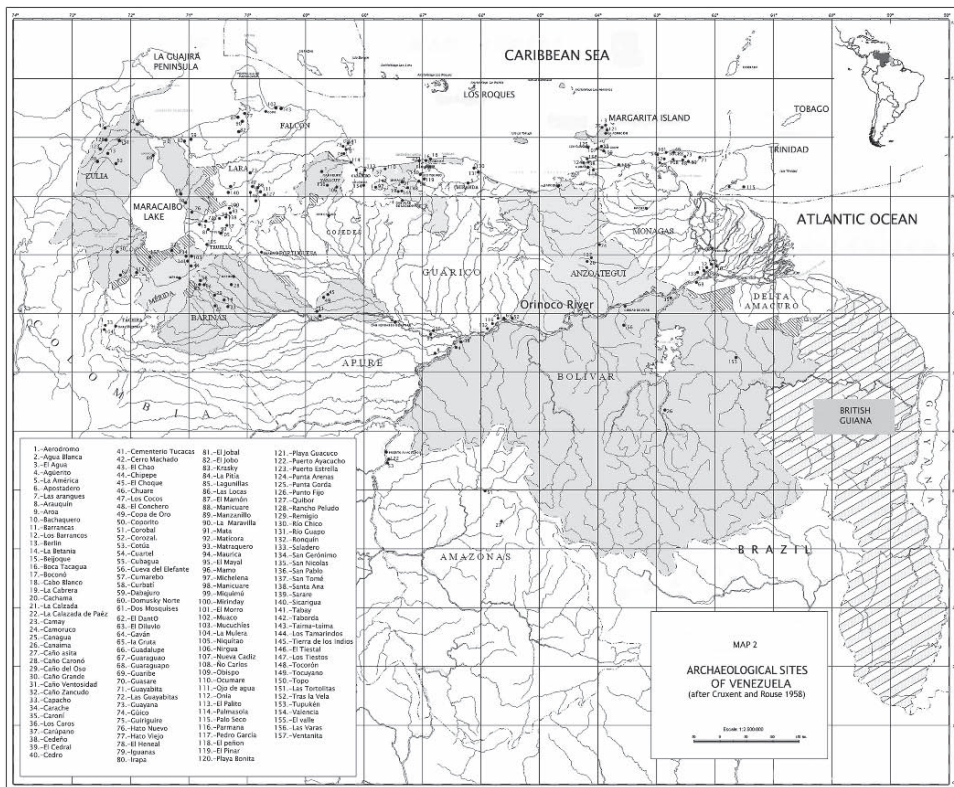


Figure 23.3. Location of sites mentioned in the text. (Courtesy: Juan Carlos Rincón)

Pedro García (Anzoátegui State) were occupied. Lithic instruments elaborated by percussion to open shells are diagnostic (Cruxent and Rouse 1982; Fundación Polar 1988).

3. *The gathering of endemic species in the Sucre coast mangroves* (Sanoja and Vargas 1995). Sites include No Carlos, Remigio, Las Varas and Guayana. Mangroves were fundamental for the sedentarization process for ancient gatherers between 5000-2000 BC, involving subsistence resources and materials such as wood, resins, fibers, pigments, etc., as well as an exceptional protein source obtained from mollusks, fish, reptiles, and birds. They are related to shell middens combined with evidence of small mammals and birds, including flakes to open shells, hooks, knives, shell and bone needles for textile and net manufacturing, net weights, and proto-agricultural artifacts such as grinding stones (Fundación Polar 1988; Sanoja and Vargas 1995).
4. *Fishermen and hunters related to eastern Venezuelan coast gatherers*. Sites include El Conchero and El Peñon (Sucre State). They contain informal multi-functional flakes and scrapers for hunting and gathering activities.
5. *A similar way of life in the central-western Venezuelan coast in small shell middens*. Sites include El Heneal, Iguanas (Falcón State) and Cabo Blanco (Vargas State), with informal multi-functional flakes. They also had polished stone tools—metates and grinding stones—showing proto-agricultural practices.

6. *An occupation experimenting with protoagriculture*. This was defined at the Michelena site (Carabobo State). Besides hunting and lake fishing in the Valencia Lake basin, they developed some seed agriculture practices manifested by polished stone artifacts, metates, grinding stones and typical conical grinders (Fundación Polar 1988).
7. *Inland small mammal hunters*. They are present at the Canaima and Tupukén sites (Bolívar State) and in the Orinoco and Caroní rivers, between 7000-5000 BP, characterized by the combined use of percussion and polished jasper or quartz instruments—flakes, sharpeners, scrapers, knives, and projectile points and peduncular points (Barse 1990; Sanoja and Vargas 1995). Preliminary Mesioindian evidence from Capacho (Táchira) consists of lithic artifacts, probably related to hunter and gatherer bands (Wagner 1999).

FROM GATHERING TO AGRICULTURE: THE NEOINDIAN PERIOD AND TRIBAL SOCIETY IN VENEZUELA

An unprecedented process of socio-cultural transformation in Venezuela was propelled by experimental agricultural practices, which catalyzed the first social formation centered on food *production*: tribal society. Known as Neoinian, this social formation was manifested in a variety of regional cultures appearing by at least 1000 BC and lasting until the European invasion (Sanoja 1982).

The South American Formative is characterized by two technological innovations that drastically changed the modes of production and social organization: agriculture and pottery production. Although these processes were not simultaneous everywhere, the earliest South American evidence comes from northeastern Colombia, at the site of Puerto Hormiga, radiocarbon dated to 5040 ± 70 BP, and Monsú, also in this region, with the earliest date for pottery manufacturing in the Americas at 5300 ± 80 BP. This transformation is related to the domestication of roots, tubers and rhizomes, especially manioc, and the technological development necessary for its consumption. Processing of bitter manioc for manufacturing bread—cassava—requires a specialized technological instrument, expressed in the archaeological record by micro-flakes for graters and flat clay plates (budares) for their cooking. This technology expanded broadly to the Andes, the north South American lowlands, and the Caribbean. Two cases in Venezuela are relevant for the Formative: the Barrancoid tradition in the Lower Orinoco and the northwestern Tocuyanoid. In neither of the cases is there a long process of local evolution, which supposes diffusion from earlier core areas, especially northern Colombia, the Ecuadorian coast and the eastern Peruvian piedmont (Sanoja 1982).

Regional Perspectives: The Orinoco Basin

The Orinoco basin is a complex hydrographic system that geographically constitutes the Venezuelan backbone. The Orinoco River itself is 2,200 km long, beginning in the south in the Delgado Chalbaud mountains (Amazonas State), running westward until San Fernando de Atabapo, then north to Puerto Ayacucho. The upper Orinoco includes the Casiquiare that connects to Amazon tributaries, and is associated with a dense tropical forest with occasional savanna patches. The Middle Orinoco turns to the east and runs through central and eastern Venezuela, where it is bordered by savannas and llanos. Then it splits into a delta before reaching the Atlantic Ocean; this is the Lower Orinoco. The Orinoco involves,

directly or indirectly, most of the other Venezuelan hydrography and is part of, through the Río Negro and Casiquiare connection, the Greater Amazon basin (Cruxent and Rouse 1982; Gasson 2002).

Lower and Middle Orinoco archaeology constitutes the axis for Venezuelan cultural historical chronological construction and is the center for crucial debates on regional chronology (Cruxent and Rouse 1982). Its connection with the rest of the Venezuelan regions and strategic position among highland, lowland and Caribbean geographic-cultural patterns attracted early researchers (Howard 1943).

Cruxent and Rouse (1982) proposed a style-based regional sequence comprising Cotúa for the upper Orinoco, Ronquín and Camoruco for the Middle Orinoco, and a sequence of Saladero, Barrancas, Los Barrancos, Guarguapo and Apostadero for the Lower Orinoco.

Cotúa—Period III—is a Saladoid painted simplified variant with some Barrancoid elements.

Ronquín—Periods II and III—is the Saladoid series principal style (Rouse 1978); it has a heavy and compact pottery, but is very thin and has smooth, fine sand and crushed quartz temper and reddish-brownish colors. Open flat bowls and carinated and everted bell-shape bowls are typical. Bases are generally flat. Rims tend to be plain or triangular. It includes vertical strap handles surmounted by lugs and simple modeled-incised-punctuated biomorphic ornaments. Characteristic of this style are broad superficial curvilinear parallel circles, spirals, concentric semicircles and oblique lines on stripes on rims. Its diagnostic decoration is the painting of short straight or curved lines in red-on-unslipped or white-on-red on upper vessel bodies or flat bowls, zoned crossed hatched, with typical big white geometric areas delimited by very thin lines. Usually surmounted or side-by-side, scratched or scored to make negative designs, they are separated from plastic motifs. Grid-dle fragments and some grinding stones are associated (Figure 23.4).

Camoruco—Period IV—part of the Arauquinoid series, diffused to the Orinoco from the Venezuelan western llanos. It has a very light, porous and soft paste tempered with fresh-water sponge spicules (*cauxí*), with pale colors, smooth surfaces and frequent textile impressions. Open bowls, bottles, and jars with flat bases prevailed. Rounded, triangular or flanged rims are predominant. Decoration is basically plastic with a predomination of incised-punctuated-appliqué combinations on vertical handles, rims, inflexions or necks. There are rounded anthropomorphic or zoomorphic prismatic ornaments, usually flanked by fillets, with elongated balls or lugs crossed by short parallel incisions. Rectilinear deep thin incised designs appear between horizontal lines flanking alternating directions parallel lines with triangular or diamond spaces filled with dots, hollow dots, incision or excision. Clay griddles, grinding stones and stone hammers are associated.

Vargas (1981) excavated in La Gruta y Ronquín with Mario Sanoja. Vargas differs from Cruxent and Rouse's genetic-stylistic model, locating the Saladoid regional origin in the Middle Orinoco instead of the Lower Orinoco. Vargas inferred that site occupation began in Period I of the Ronquín Phase (650 BC), by small extended family groups with a semi-sedentary seasonal river settlement pattern and a subsistence based on manioc cultivation, hunting, and fishing. For Period II (AD 0–300), they modified some stylistic traits such as the abandonment of organic tempers and polychrome painting and added others such as crossed-hatched and painting on unslipped surfaces. In the Corozal Phase (AD 600–1400), with the arrival of other groups, villages grew over natural mounds, incorporating maize and cotton production. This technological change generated a more stable settlement and coincided with the appearance of *cauxí*-tempered pottery, zoned incising



Figure 23.4. Saladoïd anthropomorphic bottle neck. (photo: Carlos Germán Rojas, Universidad Central de Venezuela Collection; Arroyo et al. 1999: 241)

and impressions. Ronquín shows a non-local process related to the widespread stylistic western South America white-on-red and crossed-hatched horizons during the Andean Formative (but see, e.g., Willey 1948), moving later to the lowlands.

Roosevelt (1980) in Parmana postulated that the introduction of a new technology to a different environment allows increasing productivity, demographic density and cultural complexity. Maize's late introduction by Camoruco people and its refinement by the Corozal people produced this qualitative change. Roosevelt established a new regional sequence beginning with La Gruta tradition, equivalent to Saladoïd and formed by La Gruta, Ronquín, and Ronquín Sombra Phases. Changes from La Gruta to Ronquín related to inner Saladoïd transformations; Ronquín Sombra was distinguished by Barrancoid intrusive traits. The next tradition, Corozal—Phases I to III—was intrusive from western Venezuela; it gradually changed from a La Gruta pattern to using cauxí along with other new decorations. Finally, the Camoruco tradition—Phases I to III—related to the Arauquinoid penetration, ends with the Contact Period. Roosevelt proposed that La Gruta tradition had a manioc-based subsistence and a small population distributed between the La Gruta semi-permanent village and seasonal sites. On the contrary, maize during Corozal and Camoruco accelerated population growth.

The Cedeñoïd and Valloïd series refined and amplified regional chronology and the dispersion model. The Cedeñoïd (Zucchi and Tarble 1984), which is the earliest, dating to

before 1000 BC, is characterized by clay balls, temper combining sand, charcoal or vegetal fiber; soapy surfaces, rounded or carinated bowls and globular jars. The pots are incised with continuous horizontal lines or short incisions on rims or bodies, or polychrome painted or red-on-unslipped surface with broad line designs. It is associated with a South American lowlands early horizon around the fourth century BC. It had a flexible, sporadic settlement pattern, with hunting, fishing and gathering subsistence, and possible proto-agriculture. These people coexisted with Saladoids around 400 BC. Between AD 500 and 1000 Arauquinoid introduced maize and later (AD 1000–1200) its demographic growth and strong political pressure pushed Saladoid and Cedeñoid to the western llanos and coast. Valloid, AD 1000–1500 (Tarble 1984), appeared always associated with Arauquinoid. It is characterized by crushed rock temper, high open bowls and globular vessels with tubular necks, scarce applied-punctuated-incised fillets decoration, punctuated clay balls creating triangular or diamond designs on the necks, and incised zoomorphic figures. Due to the Valloid inland prevalence, a Western Guyana Carib subgroup origin is proposed, related to the Corobal Phase, Caño Asita and the Puerto Ayacucho sites (Figure 23.5).

For the Lower Orinoco area, the first style is Saladero, dating to the first half of Period II. It is represented by a small pottery collection with the same early Ronquín plastic and painted diagnostic traits, which developed later after moving to the Middle Orinoco. Barrancas, the principal style of the Formative Barrancoid series, dating to the second



Figure 23.5. Valloid-Corobal anthro-zoomorphic ornament. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 281)

half of Period II, has a very heavy and thick paste tempered with coarse sandstone, and polished greyish-browish dark surfaces. It constitutes a unique combination of modeled-incised designs and broad superficial incision on massive and large bowls, jars and bottles with complex shapes—flanges, spouts, modified rims, etc. Sculptural anthropomorphic and zoomorphic faces and curvilinear designs on spouts, flanged rims and bodies are characteristic (Figure 23.6). Los Barrancos—Period III—derives from Barrancas with simpler shapes but with a more elaborated and complicated modeled-incised pattern (Figure 23.7). Guarguapo—Period IV—is an expression of the Arauquinoid expansion throughout the river, and Apostadero—Period V—is a simplified independent style mixing late Orinoquian tradition with European traits.

The general accepted Orinoco chronology before the research of Sanoja and Vargas was Cruxent and Rouse's. It located two cultural styles for the early period: Saladoid and Barrancoid. Saladoid originated early in the Lower Orinoco (Saladero) around 2000 BC—from an Arawakan background—and then spread to the Middle Orinoco to form the Ronquín style. Around 100 BC they spread to the eastern Venezuelan coast and occupied Guyana and the Caribbean. Barrancoid derived from Saladoid in the Lower Orinoco with the Barrancas style (Period II) and got more complex with Los Barrancos style in Period III. It spread to the central Venezuelan coast around AD 100. Later, around AD 1000, an aggressive Arauquinoid penetration forced a final movement of Saladoid and Barrancoid peoples and minor Carib groups. This scheme favored a *long* chronology that advocated a local Amazonian origin. In contrast, Sanoja and Vargas favored the so-called *short* chronology, assuming a highland agriculture and ceramic origin. Saladoid and Barrancoid traditions, beginning 1000 BC, would have been locally independent with a common origin in an Amazonian genetic pool as a byproduct of a Formative Sub-Andean diffusion (Sanoja and Vargas 1979).



Figure 23.6. Barrancoid oval vessel. (photo: Alfredo Boulton, Universidad Central de Venezuela Collection; Arroyo et al. 1999: 263)



Figure 23.7. Barrancoid zoomorphic ornament. (photo: Carlos Germán Rojas, Galería de Arte Nacional Collection; Arroyo et al. 1999: 253)

Regional Perspectives: The Eastern Venezuelan Llanos and Coast

The first, scant regional information for the eastern llanos was offered by Osgood and Howard (1943) from two sites in San Tomé: Güico and Cachama. For the Valle de la Pascua, there are two pottery styles: Memo and Guaribe (Rouse and Cruxent 1982). The Memo style has fine sand temper, simple shapes, dominating globular vessels and straight unrestricted bowls, rounded lips, flat bases and nail-shape compact legs. Decoration is typically textured, achieved by fine vertical triangular-section fillets, small clay balls, incising or scratching of closed parallel vertical lines, punctuation or textile or other impressions. There are also incised-punctuated fillets on necks, and tabular or point-shaped plain lugs. Painted lines forming concentric triangular and diamond areas, occasionally dotted, are characteristic. Clay griddles, trapezoidal stone celts, and hammers are frequent. Due to its resemblances to the western Dabajuroid and presence of European material, Memo was located in Periods IV and V. Guaribe comprises coarser, thicker sherds similar to Memo. Single or multiple corrugated rims, sigmoid applied fillets, roughening and textile impressions are more frequent. Like Ocumaroid, Memoid combines western and eastern traditions.

The coastal region, from Unare to Güiria, was a center of early development of pre-ceramic and ceramic traditions, of complex interaction of western and eastern traditions, and late style emergences and spread to the Caribbean (Cruxent and Rouse 1982).

For the Barcelona area there are two styles, Guaraguao and Maurica. Guaraguao—Period IV—evidenced the western Dabajuroid penetration. Simpler than Dabajuro, it shares shell temper, corrugations, textile impressions, ring bases, applied coffee-bean eyes and painting. Maurica—Period V—has shell and sand temper, textile impressions, globular jars with flat or ring bases, strap vertical handles, rectilinear painting, and clay griddles, and early European artifacts.

In the Cumaná area, two styles, Punta Arenas and Tras de la Vela, are represented. Punta Arenas is Dabajuroid—Period IV—with typical shell temper, hollow legs, tubular handles, and painted designs. Tras de la Vela—Period V—is an Indohispanic Dabajuroid manifestation with other traditions. It has shell and sand temper, globular shapes, roughly incised lugs and broad red-on-white painted designs, clay griddles and European material.

The Carúpano area comprises three styles, El Mayal, Chuare, and El Morro. El Mayal (ca. AD 175) and Chuare (ca. AD 600) are coastal variants of the Orinoco Saladoid. Their pottery resembles Saladero, but with elaborated crossed hatching and incisions, including some Barrancoid modeled-incision (Figure 23.8). Chuare keeps a simpler Saladoid pattern. El Morro—end of Period IV and beginning of Period V—ca. AD 1250–1650, is late, tentatively Guayabitoïd. With sand temper, simple globular jars, flat or ring bases, and clay griddles, it is decorated with incised-punctuated cylindrical applied lugs and included European elements.



Figure 23.8. Saladoid zoomorphic handle on carinated vessel. (photo: Carlos Germán Rojas, Universidad Central de Venezuela Collection; Arroyo et al. 1999: 240)

For the Güiria area, there are two styles, Irapa and Guayabita. Irapa, ca. AD 375, belongs to the Saladoid series and it is stylistically related to other insular expressions such as Palo Seco and Cedros (Trinidad State), by means of the hollow, rounded, modeled anthropomorphic and zoomorphic ornaments on vertical strap handles, red-on-white painting, and fine incised crossed hatching. Guayabita—late Period IV—is the principal style of the provisional Guayabitoïd series; the site is a shell midden with a very simple pottery tempered with sand and shell, globular jars and open bowls, plain rims, cylindrical lugs, crude incised and applied designs, and clay griddles. It relates to Bontour (Trinidad State). For Margarita Island, Cruxent and Rouse defined four styles: El Agua, Playa Guacuco, Nueva Cadiz and Obispo. El Agua is part of the Saladoid series, while Playa Guacuco relates to the Dabajuroïd. Nueva Cadiz and Obispos—Period V—are independent and both presented European materials.

Regional Perspectives: The Central Venezuelan Coast

This region stretches from Río Chico (Miranda State) to the east and Tucacas (Falcón State) to the west. It also includes the inland Valencia, Los Teques and Caracas areas and the Los Roques islands. It was, since early Mesoindian times, a communication region for eastern and western cultures, a process consolidated during the Neoindian regional Valencioïd interaction sphere—Period IV (Antczak and Antczak 1999).

For the Río Chico area, Cruxent and Rouse (1982) defined three styles, Río Guapo, Río Chico and La América. Río Guapo—end of Period II and III—represented a coastal development probably related to an early pre-painting Saladoid movement. It shares plastic traits with the Orinoco Saladoid but it lacks the typical painting that defines earlier stages. It is also related to central Barrancoïd expressions such as El Palito through some clay pipes, curvilinear broad incision and modeled-incised motifs. Río Chico—Period IV—represents the easternmost end of the Valencioïd sphere with very simplified shapes and decoration, while La América—Period V—is a peripheral simplified Memoid.

Three styles, Cerro Machado, Boca Tacagua and Topo, form La Guaira area. Cerro Machado—Period II—a Tocuyoïd coastal expression, presents hollow bulbous legs; curvilinear geometric designs, incised, punctuated, painted red and/or black on white. Boca Tacagua—Period III—is an Ocumaroïd variant with grit temper; annular and perforated bases; rim corrugation; painting red and black on white parallel lines, triangles and ladder-like designs; and simple modeled lugs, mixed with some Barrancoïd traits—rim flanges, clay pipes, vertical strap handles. It is followed by the Valencioïd El Topo style—Period IV—a simplified coastal peripheral expression with sand and mica temper, coffee-bean eyes, applied-incised-punctuated human faces and lugs applications, and red slip.

In Caracas there is only one style, El Pinar, as well as in Los Teques area, Las Minas. They are simpler Valencioïd expressions. Krasky in Los Roques is an insular Valencioïd with an elaborated ritual artifact assemblage including feminine figurines and shell ornaments.

Valencia has received the attention of many archaeologists since the early twentieth century due to its mound complexes, petroglyphs, funerary contexts, and variety of artifacts (Bennett 1937; Howard 1943; Kidder II 1944; Marciano 1971; Oramas 1934; Osgood 1943; Requena 1932). Early excavations in mound complexes distinguished two occupations: an early pre-mound period (possibly pile dwellings over water) and a later one, related to mounds.

Two styles were defined, La Cabrera and Valencia (Cruxent and Rouse 1982). La Cabrera—end of Period II and III—represents the more complex central coastal Barrancoïd.

Similar to the Orinoco in its modeled-incised heads, spouts, and clay pipes, it lacks complicated modeled-incised and incised designs, presenting western traits such as perforated annular bases, rectilinear incised and punctuated designs, and appliqué ridges (Rouse and Cruxent 1963). Valencia is the principal style of the Valencioid series. It is coarse, sand and mica tempered with rough surfaces. Vessels are globular or biglobular bowls and ollas with occasional perforated annular bases, decorated with applied-punctuated human faces with coffee-bean eyes, high arching foreheads, arms, hands, and simple vertical ridges (Figure 23.9). Small rod handles and zoomorphic and anthropomorphic lugs and heads are diagnostic. Incision consists of straight parallel lines that incline in opposite directions separated by punctuations. Frequently associated with the complex mound or funerary contexts are clay applied-incised-punctuated figurines with flat and canoe-shaped heads (Figure 23.10); griddles and miniature tools; grinders, grinding stones, and mortars; stone, shell and bone beads; and stone rectangular or bat-wing pendants (Rouse and Cruxent 1963). They probably practiced manioc and maize agriculture and had a chiefly structure with an expansive and very effective control over the Venezuelan central coastal (Antczak and Antczak 1988; Arroyo et al. 1999).

The Puerto Cabello area contains six styles—Ocumare, Palmasola, El Palito, Taborda, Cumarebo and San Pablo—clearly reproducing the eastern and western traditions' complex interaction. El Palito—second half of Period II and Period III—and Taborda—Period IV—are two coastal Barrancoid styles developed from La Cabrera. The former closely resembles La Cabrera with western influences, while the latter introduces a combination of Ocumaroid and Barrancoid traits. Ocumare—second half of Period III—is the locally developed Ocumaroid series principal style. It presents flat, annular and perforated bases; massive legs; flanged or hollow rims; rim corrugations; modeled-incised lugs; rectilinear red and black on white painting—parallel lines, triangles, ladder-like motifs; clay griddles and pipes. As in the eastern Memoid, some elements point to western traditions such as Tocuyanoid and Dabajuroid, and others to the eastern Barrancoid. The Ocumaroid Palmasola—Period IV—



Figure 23.9. Valencioid vessel. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 496)



Figure 23.10. Valencioid female standing figurine. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 497)

includes commercial Valencioid artifacts and Dabajuroid traits such as textile impressions, horizontal tubular handles, and coffee-bean eyes. During the same period, San Pablo was originally identified as Tierroid (Rouse and Cruxent 1982) and later discussed by Wagner and Arvelo (1989) as an independent stylistic unit from Yaracuy and Lara. Cumarebo—Period IV—belongs to the Dabajuroid horizon.

The Tucacas area comprises two styles, Aroa and Cementerio de Tucacas. The former—Period III and IV—is typically Ocumaroid. The latter, due to its temper and scarce decoration, represents the westernmost Valencioid extension—Period IV.

Regional Perspectives: The Western Venezuelan Llanos

This region comprises Guárico, Barinas and Apure, and southern Portuguesa and Cojedes. Since the nineteenth century, its archaeology has attracted scholars due to the earthen constructions, engendering substantial interpretations (Humboldt 1956; Oramas 1934, 1942; Petrullo 1939). Two regions are defined: San Fernando, with three styles: Los Caros, Arauquín and Matraquero; and Barinas with two styles: Agua Blanca and Caño del Oso (Cruxent and Rouse 1982). Los Caros—Period III—is an early independent style with sand temper, open bowls and jars, and broad superficial parallel straight or curved lines on rims incising decoration. The Arauquinoid began—Period III and IV—with Arauquín and Matraquero. The diagnostic traits of the principal style, Arauquín, consist



Figure 23.11. Arauquinoid decorated vessel body. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 267)

of soapy beige and greyish cauxí tempered sherds, globular collared jars and bottles, and bowls with out-sloping sides. Decoration follows a typical appliqué-incision-punctuation pattern of anthropomorphic or zoomorphic lugs, and coffee-bean eyes on human faces with elongated eyes and arching eyebrows; and sharply, deeply incised bordered bands of parallel lines inclined in alternate directions, leaving triangular spaces filled with incisions, dots or excision (Figure 23.11). Clay griddles, cylindrical stamps, spindle whorls, figurines, and pot rests are typical. Similar to Arauquín, Matraquero lacks the excision and the modeled lugs; incision is less frequent and applied-incised-punctuated motifs are more frequent. They show a late Amazonian northern Carib expansion, diffusing later east to the Orinoco River and south to Colombia's northeastern llanos, influencing the Valencioid and also possibly affecting the movement of minor late Carib groups (Cruxent and Rouse 1982; Lathrap 1970; Zucchi 1975). For Barinas, two styles are defined: Agua Blanca and Caño del Oso, preliminarily related to western painted traditions.

Zucchi (1966, 1975, 1979) excavated the La Calzada and Caño Caroní sites and, with William Denevan, raised fields at Caño Ventosidad. Six pottery complexes are differentiated: Caño del Oso, La Betania, Caño Caroní, El Choque, Copa de Oro, and Punto Fijo. Caño del Oso (230 BC-AD 500) comprises complex shapes—carinated bowls, biglobular or biconvex bottles, bell shape tops, pedestal plates, and flanged and ringed bottles—and a decoration, basically painted in red or brown on white or red, of parallel lines with spirals, circles, dots, and zoomorphic motifs (Figure 23.12). It includes grinding stones; stone and shell beads and pendants; and zoomorphic and anthropomorphic figurines. La Betania resembles the previous, including globular and multi-pod vessels, modeled lugs on legs, clay griddles, and earthen structures. Together they defined the Osoid series.

Caño Caroní was a minor late gallery forest group (AD 1200–1400). Two wares characterize it: one is thick and coarse, with tubular vessels, griddles, annular bases, legs,

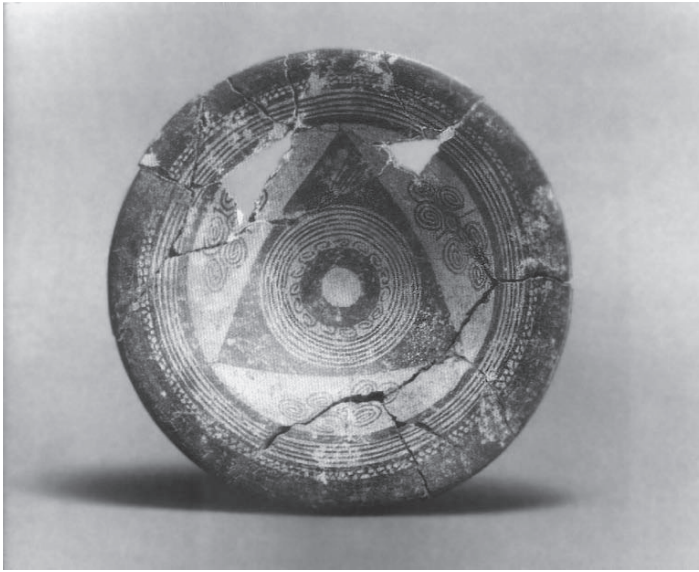


Figure 23.12. Osoid pedestal base dish. (photo: Carlos Germán Rojas, Instituto Venezolano de Investigaciones Científicas Collection; Arroyo et al. 1999: 291)

textile impression, rectilinear painted decoration, corrugations, flanges, modeled lugs and handles, rectilinear incision, and punctuation; the other is fine and thin, with globular shapes, and slips. Abundant associated artifacts—spindle whorls, beads, roller stamps, figurines, pendants, miniature vessels, clays discs, grinders, polished celts—were present. Its relative simplicity and settlement suggest a Carib southern origin during Arauquinoid expansion (Zucchi 1975).

In Caño Ventosidad, Zucchi and Denevan (1979) studied earthen constructions dated to ca. AD 1200 and 1700. Three ceramic complexes were sequentially defined. El Choque shows crushed quartz temper, some angular bowls, bottles with angulated necks, incisions or fingerprints on rims, simple applied lugs, and painted brown lines on white. Punto Fijo has cauxí and quartz temper, double spouted vessels, clay griddles, textile impressions, rectilinear diagonal incision, and circles. Copa de Oro presents a cauxí, quartz and clay balls temper and a scarce incision-impression-appliqué and painted decoration of rectilinear black on crude triangles.

With a more ecologically oriented perspective, Garson (1980) developed one of the first and few processual approaches in Venezuela, working in La Calzada de Páez (Barinas). He analyzed the Osoid regional settlement pattern and food production system, outlining an interconnected regional hierarchical site typology of three levels from villages with multiple mounds and causeways to non-mound sites. He also concluded—analyzing animal and plant remains—that the seasonal flooding influenced the food procurement pattern by a cyclical shift in the productive orientation and in the regional mobility pattern.

Spencer and Redmond (1990) developed a neo-evolutionist regional analysis to test the evolution from a big-man leadership society to a society with a permanently centralized form of decision-making organized by political religious and ritual authority, emphasizing cultural processes such as authority sanctification, alliance formation, prestige goods

exchange, and interpolity warfare. They located 103 sites in the Sub-Andean Mountains and Barinas high llanos along the Canagua and Curbatí rivers. Some, like Gaván, are sociopolitical units with a multiple mound complex, surrounding causeway, and interconnecting causeways to distant sites. They defined distinctive settlement patterns for two interacting but culturally independent traditions, Gaván in the Canaguá river (high llanos), and Curbatí in the Curbatí river (piedmont), with differential sociopolitical structures in two phases: Early (AD 300–500/600) and Late (AD 500/600–1000/1100). Early Gaván relates to Osoid and Curbatí to the Santa Ana and Tocuyanoid, while Late Gaván relates to La Betania complex, and Curbatí resembles late Tierroid. The authors correlated the late phases of both traditions to historical groups with two levels of social complexity: the high llanos Caquetíos as a strong hierarchical chiefdom, and the mountain Jirajaras with a flexible leadership. Proposing that the Caquetío leaders' privileged geographical and socio-cultural position allowed organized complexity and subordinated Jirajaras villages, they developed a regional complexity model.

Gassón (1998) focused on political economy, considering earthen structures not only as adaptive devices to overcome environmental limitations, but also as ritualized and political materializations of the leaders' power. He indicated that regional central places played serving activity roles, and causewayed enclosures and regional exchange networks suggest centralizing ceremonial feasting.

Regional Perspectives: Northwestern Venezuela

Northwestern Venezuela comprises two areas: Lara and Yaracuy, and Falcón. The Quíbor Valley (Lara), especially, has been a focus of early archaeological interest due to its richness and to debates about indigenous social complexity (Basilio 1959; Kidder 1944; Nectarío María 1932; Osgood and Howard 1943).

Regional chronology for the Barquisimeto area includes the Tocuyano, Sarare, Betijoque, and Tierra de los Indios styles (Cruxent and Rouse 1982). Tocuyano—second half of Period II—is the principal style of the Formative Tocuyanoid series. Pottery is sand tempered, with large complex urns, large elongated bowls, composite vessels, and anthropomorphic and zoomorphic jars. Bases are rounded or flat, annular, annular perforated, ringed and legged, with hollow globular legs on tripod or tetrapod bowls typical. Incised-excised and modeled-incised designs combine with complicated polychrome (black and/or red on white) curvilinear snake, spiral, human face and line ending on dots. Human figurines and funerary patterns are frequent and diverse (Figure 23.13).

The Tierroid principal style is Tierra de los Indios—Period IV. It is finely tempered with sand and with very smooth and polished surfaces. Shapes are predominantly globular, comprising rounded base large jars with thickened rims, and tripod or ring and legs bowls. Horizontal tubular handles, simple zoomorphic rim lugs, and coffee-bean eyes are diagnostic. It presents a polychrome rectilinear painting with geometric parallel diagonal lines and triangular or rhomboid areas band fillet with spiral, hooks, or dots (Figure 23.14). It is associated with feminine figurines and stone and shell ornaments (plates, pendants, beads). Sarare—Period III—represents a transitional pattern between Tocuyanoid and Tierroid. Betijoque—Period III—is an independent style, resembling Andean patterns.

In the Quíbor Valley and vicinities social archaeologists excavated in the Quíbor cemetery, El Tiestal, Ojo de Agua, Playa Bonita and Las Locas, Los Arangues and Sicarigua (Molina 1985; Toledo 1985; Toledo and Molina 1987; Sanoja 1967). Beyond regional chronology and stylistic framework refinement, they offered a social approach to the productive aspects of agriculture and to the origins of social complexity. They stressed the



Figure 23.13. Tocuyanoid vessel. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 403)



Figure 23.14. Tierroid tripod bowl. (photo: Carlos Germán Rojas, Galería de Arte Nacional Collection; Arroyo et al. 1999: 454)

ecological, technological, and sociopolitical possibilities promoted by maize in a region favorable for its production. Tocuyanoids began sedentism with an egalitarian mode of life based on maize. Improved agriculture humanized the natural landscape and transformed social relations of production, producing social complexity expressed in differential funerary patterns and access to sumptuary goods, earthen structure construction, and differential culinary and sumptuary wares. Beginning in the Christian era, new northern technologies propelled a social hierarchy, with consolidated between the twelfth and fourteenth centuries among three regional traditions: Guadalupe (Lara State), Dabajuro (Falcón State) and Carache (Trujillo State) (Vargas 1990).

Arvelo (1999) tested this chiefdom thesis for the Quíbor Valley. For her, the first Neoindian evidence was associated with the Tocuyanoid around AD 300. From AD 600, the Tierroid and Dabajuroid series and the San Pablo style are apparently related to certain complexity. Ethnohistorical evidences confirm relationships between the historic Caquetíos and Dabajuroid series in Falcón and Yaracuy, especially regarding salt interchange (Oliver 1989). Between the twelfth and fifteenth centuries, differential complexity and inter-societal complex networks developed, associated with Malamboid, Tocuyanoid and Dabajuroid macro-traditions (Oliver 1989; Arvelo 1999).

The San Felipe area comprises the Aeródromo and San Pablo styles. The Tocuyanoid Aeródromo—second half of Period II—is a simplified version. San Pablo—Periods IV and V—is Tierroid and presents characteristic tripod bowls with solid legs, scarce simplified painting and predominant incised-appliqué decoration (Figure 23.15). Wagner and Arvelo (1989) identified Ocumaroid components in the Aroa River, Yaracuy, and Memoid in Nirgua.

The Coro area, Falcón, comprises one style, the Dabajuroid series principal style, which extends in a horizon all along the Venezuelan coast up to Margarita Island and the Netherlands Antilles. Dabajuro—Period IV—is tempered with crushed shell and presents

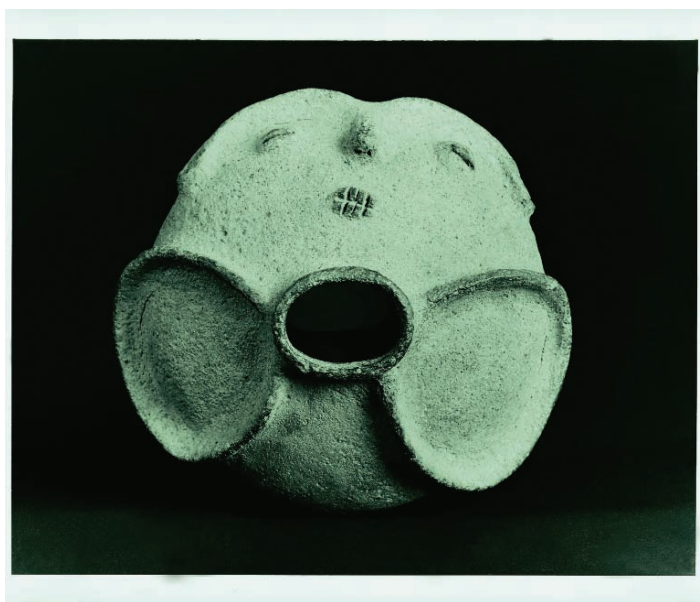


Figure 23.15. San Pablo anthropomorphic mask. (photo: Carlos Germán Rojas, Museo de Ciencias Collection-MBA; Arroyo et al. 1999: 421)



Figure 23.16. Dabajuroid zoomorphic double-spouted bottle. (photo: Carlos Germán Rojas, Galería de Arte Nacional Collection; Arroyo et al. 1999: 466)

corrugations and textile impressions, annular and annular perforated bases and hollow legs. Its decoration shows two patterns: one, with horizontal tubular and bi-tubular handles, varied applied ornaments and lugs, incised punctuated designs on coarse thick paste; and the other has a geometric rectilinear black on white or red or crude painting of stairs, comb, spirals and others interrelated motifs on thin pottery (Figure 23.16). It is associated with burials having offerings of stone, shell or bone ornaments. Malamboid evidences of communal households—malocas—were detected in Matícora (Oliver 1989). Regional evidence reflects a strong Dabajuroid chiefdom (Vargas 1987).

Regional Perspectives: The Andes

Early Venezuelan Andean archaeology was strongly influenced by cultural history and ecological approaches, focused on stylistic definitions and cultural chronologies (Kidder 1948; Osgood and Howard 1943). Cruxent and Rouse (1982) delimited three areas: Trujillo, Mérida, and San Cristóbal. For Trujillo, the Santa Ana, Betijoque and Mirinday styles were established. Santa Ana—end of Period II—is similar to Tocuyanoid but independent; it presents Formative patterns. Mainly related to funerary rock shelters, the pottery shows complex shapes and modeled-incised and punctuated-incised patterns. Finely mineral tempered, thin, and carefully polished, it includes large funerary urns, tripod or tetrapod vessels with hollow flattened thick legs, anthropomorphic figurines, and a curvilinear polychrome painting (Figure 23.17) (Tarble 1982; Wagner 1999). Betijoque was also an early independent pottery style. Its complex painting consists of multiple rectilinear and curvilinear designs of extremely thin closely spaced lines in black on white (Figure 23.18). Tierroid Mirinday—Period IV—has the typical rectilinear painting, but with application of sinuous punctuated fillets, clay incense burners and lithic plates (Figure 23.19) (Wagner 1988).

For the Mérida area, two styles were defined: Chipepe and Tabay (Cruxent and Rouse 1982). Chipepe is Tierroid—Period IV—and shows a simplified Tierroid version with thick walls. Tabay, independent but similar to Tocuyanoid, has rounded shapes and is



Figure 23.17. Santa Ana zoomorphic tetrapod bowl. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 312)

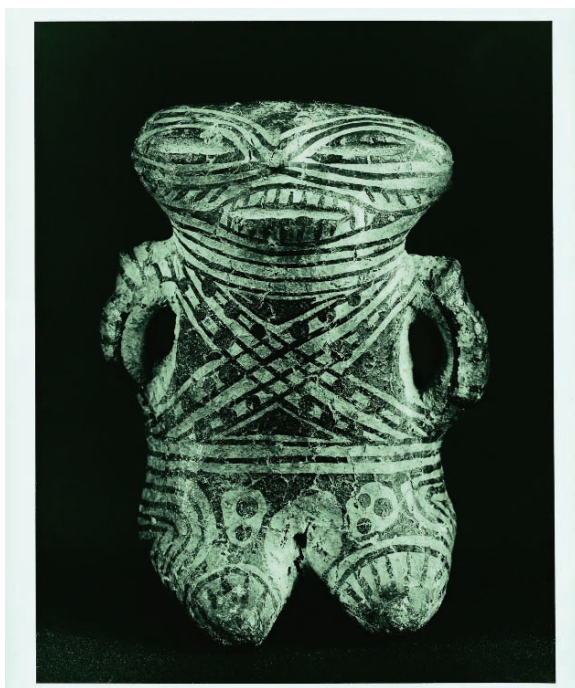


Figure 23.18. Betijoque female seated figurine. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 321)

decorated with simple incised-punctuated designs and hollow globular legs. The Táchira, Capacho and La Mulera styles are successive typically Dabajuroid styles—Period IV—showing sand temper, simple shapes, and frequent textile impressions. Capacho incision is similar to Tocuyanoid; La Mulera has more impressions.



Figure 23.19. Mirinday-San Nicolás tripod bowl. (photo: Carlos Germán Rojas, Museo de Ciencias Collection; Arroyo et al. 1999: 363)

Wagner (1988) applied a cultural ecological view to the Venezuelan Andes. She defined new series, the Miquimuoid (formed by the Miquimú and Las Guayabitas styles), added the San Nicolás and Mucuchíes styles to the Tierroid series, and included the Betijoque style in the Pitiod series, typical of Maracaibo Lake. Arvelo (1987) included Tocuyano and Betijoque in the Hokomo Tradition, Santa Ana in the Lagunillas Tradition, Miquimú in the Berlín Tradition, and Mirinday in the Mirinday Tradition.

Wagner defined three cultural patterns related to Venezuela's environmental and altitudinal contrasts. The Andean pattern, with cold lands between 2,000 and 3,000 masl, has a subsistence base centered on potatoes, maize, and hunting, complemented by interchange networks among different Andean levels and other Colombian and Venezuelan regions—defined as micro-verticality. They developed an incipient stone architecture of drainage channels, agriculture terraces, stone walls, and funerary chambers (mintoyes). Lithic carving, especially winged plates, and sumptuary artifacts of exotic materials in funerary contexts are frequent. It is characterized by the Tierroid from Mucuchíes.

The Sub-Andean pattern is characterized by mild or temperate lands located between 800 and 2,000 masl. It comprises the Andean piedmont and valleys and is characterized by the Carache Valley, Trujillo. Its subsistence was based on maize and the hunting of small mammals and birds. It lacks stone architecture and funerary complexity. Its pottery is more elaborated, with items such as incense burners, coming from the Tierroid, Dabajuroid and Miquimuoid traditions. They relate to the regions of Maracaibo Lake, northwestern Colombia, the Antilles, and Panama.

The Northern Tropical Andean pattern comprises hot lands, located below 800 m elevation. This pattern is found in the transitional piedmont area to the Maracaibo basin

and the llanos. It is characterized by Los Tiestos and El Jobal, Trujillo. Subsistence was based on maize and manioc, gathering, and hunting. Its funerary patterns reflect interaction between the Andes and the “Tropical Forest Culture” (Wagner 1980, 1988). The San Gerónimo Phase coincides with this pattern (Vargas 1969).

Regional Perspectives: The Maracaibo Basin and the Guajira

Northeasternmost Venezuela comprises the Maracaibo Lake basin and La Guajira Peninsula. Three pottery styles were initially identified: La Pitia, Dabajuro, and Hato Nuevo (Cruxent and Rouse 1982). La Pitia—Period II to V—is a shell midden in the lower Guajira (Acosta Saignes 1983; Cruxent and Barbosa de la Torre 1982; Gallagher 1976). It is an example of the interaction sphere of northern South American and Mesoamerican patterns (Gallagher 1976). Its pottery presents Tocuyanoid and Malamboïd use of broad curvilinear incision and polychrome painted patterns. Its broad incision includes sinuous circles or curves combined with dots. Painting consists of total or partial white or red slips, curvilinear variable fine designs forming circles, spirals, dots and hooks. Rectilinear designs are bands of inclined alternating straight lines. It is associated with seated or standing human figurines.

The local Dabajuro is a typical extension of the Falcón Dabajuroïd. Hato Nuevo—Period IV—is another independent style. It has Tocuyanoid traits but resembles Santa Ana and relates to an origin from the Orinoco, Antilles, Colombia and Panama. Excavations in the Onia, Caño Grande, Caño Zancudo and Ventanita sites (Sanoja 1969) confirmed connections with northern Colombia.

Excavations on eastern (Bachaquero and Lagunillas) and northwestern Maracaibo Lake (El Diluvio, Las Tortolitas and Berlín) and in the northwestern Guasare-Socuy micro-region (Arvelo 1987; Tartusi et al. 1984) defined three traditions: Malamboïd Tradition; Ranchoïd Tradition, formed by the Puerto Estrella (AD 500–700), Rancho Peludo (AD 1000–1100) and Guasare (AD 1300–1350) Complexes; and the Hornoid Tradition. The earlier occupations (5000 BC–AD 500) were Malamboïd, with a subsistence based on manioc, while the Lagunillas and Hokomo traditions were based on maize. Colombian-influenced Malamboïd presents a complex modeled-incised and broad curvilinear incision. The Amazonian Hokomo tradition has curvilinear polychrome painting and zoo-anthropomorphic appliqué. Lagunillas combines both traditions. From AD 100 until the fourteenth century, the Berlín tradition occupied the Perijá piedmont, mixing manioc and maize agriculture, while the locally developed El Danto and Los Cocos styles and Mirinday tradition introduced lowland-influenced polychrome rectilinear painting (Arvelo 1987).

CONCLUSION

Venezuelan archaeology may be described as “a patchwork in process.” Archaeological research in Venezuela has primarily focused on studying stylistic variability in ceramics (Arvelo 1983; Gallagher 1976; Tarble 1982; Wagner 1973), on modeling population movements (Arvelo 1987; Oliver 1989), and on unilinear evolutionary sequences of social organization (Sanoja and Vargas 1974, 1987; Toledo and Molina 1987). These approaches covered wide areas, leaving some areas with no archaeological information among “hot spots” such as the Orinoco, Lara and Barinas (Arvelo 1995). This patchwork framework makes it difficult to establish connections within Venezuela and with the continent (Navarrete 2004).

Nevertheless, the cultural historical, ecological, Marxist, and a few processual approaches have provided a more substantial perspective of Venezuela's pre-Hispanic past. Also, macro-scale models of ceramic and human dispersal have put Venezuelan archaeology in a continental scope (Oliver 1989). Likewise, new regional research programs are filling in the gaps, which is necessary to get a better picture of the connections within and outside the country (Navarrete 2004).

ACKNOWLEDGMENTS Many people have been directly or indirectly influential in the elaboration of this chapter. Inputs and discussions with Mario Sanoja, Iraida Vargas, Alberta Zucchi, Erika Wagner, Rafael Gassón, Lilliam Arvelo, Luis Molina, Kay Tarble, Emanuele Amodio, Ana C. Rodríguez, George Amaiz and others, enriched the informative and interpretative panorama of the present text. I offer thanks to Juan Carlos Rincón for the cartographic contribution and to Manuel Valero for the maps and chart design. Thanks also to Daniel Ramírez and Francisco Da Antonio (Galería de Arte Nacional) for providing the photographic material and to Francisco Javier Fernández (Escuela de Antropología, Universidad Central de Venezuela), Berta Pérez (Centro de Antropología, Instituto de Investigaciones Científicas) and José Cesarino (Museo de Ciencias) for permitting the use of their materials and photographs. Finally, this chapter is dedicated to José María Cruxent (1910–2005) and Irving Rouse (1914–2006), without whom Venezuelan archaeology as discipline would be unimaginable.

REFERENCES

- Acosta S., Miguel, 1983, *Estudios de Etnología Antigua de Venezuela*. Casa de las Américas, La Habana.
- Antczak, M. Magdalena and Andrzej Antczak, 1988, "Sacred" artifacts in prehispanic archaeological contexts, Los Roques Archipelago, Venezuela. *Ancient* 8: 8–11.
- Arroyo, Miguel, Lourdes Blanco and Erika Wagner (eds.), 1999, *El Arte Prehispánico de Venezuela*. Galería de Arte Nacional, Caracas.
- Arvelo, Lilliam, 1987, Un Modelo de Poblamiento Prehispánico para la Cuenca del Lago de Maracaibo. M.A. thesis. Instituto Venezolano de Investigaciones Científicas, Caracas.
- _____, 1995, The Evolution of Prehispanic Complex Social Systems in the Quibor Valley, Northwestern Venezuela. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.
- _____, and Erika Wagner, 1983, Las Tortolitas, un yacimiento arqueológico del Distrito Mara, Estado Zulia, Venezuela: Informe preliminar. *Boletín del Programa de Arqueología de Rescate* 3(3):103–170.
- Barse, William P., 1990, Preceramic occupation in the Orinoco Valley. *Science* 250: 1388–1390.
- Basilio, Hermano Esteban, 1959, *Cerámica de Camay, Distrito Torres, Estado Lara, Venezuela*. La Salle, Caracas.
- Bennett, Wendell C., 1937, *Excavations at La Mata, Maracay, Venezuela*. Anthropological Papers, No. 36. American Museum of Natural History, New York.
- Cruxent, José M. and Irving Rouse, 1982, *Arqueología Cronológica de Venezuela*. Armitano Editores, Caracas.
- De Booy, Theodoor, 1916, *Notes on the Archeology of Margarita Island, Venezuela*. The Museum of the American Indian Foundation, New York.
- Ford, James A., 1969, *A Comparison of Formative Cultures in the Americas*. Smithsonian Institution Press, Washington, D.C.
- Fundación Mendoza, 1971, *Arte Prehispánico de Venezuela*. Fundación Mendoza, Caracas.
- Fundación Polar, 1988, *Diccionario de Historia de Venezuela*. Fundación Polar, Caracas.
- Gallagher, Patrick, 1976, *La Pitía: An Archaeological Series in Northwestern Venezuela*. Yale University Press, New Haven.
- Garson, Adam, 1980, Prehistory, Settlement and Food Production in the Savanna Region of La Calzada de Paéz, Venezuela. Ph. D. dissertation. Department of Anthropology, Yale University, New Haven.
- Gassón, Rafael, 1998, Prehispanic Intensive Agriculture, Settlement Pattern and Political Economy in the Western Venezuelan Llanos. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.

- _____ and Erika Wagner, 1992, Los otros vestigios de la Atlantida, o el surgimiento de la arqueología moderna en Venezuela y sus consecuencias. In *Tiempos de Cambio. La Ciencia en Venezuela, 1936–1948*, edited by Yajaira Freites and Yolanda T. Arna, pp. 215–240. Fondo Editorial Acta Científica Venezolana, Caracas.
- Howard, George D., 1943, *Excavations at Ronquín, Venezuela*. Yale University Press, New Haven.
- _____, 1947, *Prehistoric Ceramics Styles of Lowland South America, Their Distribution and History*. Yale University Press, New Haven.
- Humboldt, Alejandro de, 1956, *Viaje a las Regiones Equinocciales del Nuevo Mundo*. Ediciones del Ministerio de Educación, Caracas.
- Kidder II, Alfred, 1944, *Archaeology of Northwestern Venezuela*. The Peabody Museum of American Archaeology and Ethnology, Harvard University, Cambridge.
- _____, 1948, The archaeology of Venezuela. In *Handbook of South American Indians*, Vol. 4: *The Circum-Caribbean Tribes*, edited by Julian H. Steward, pp. 413–438. Smithsonian Institution, Washington, D.C.
- Lathrap, Donald, 1970, *The Upper Amazon*. Praeger Publishers, New York.
- Marcano, Gaspar, 1971, *Etnografía Precolombina de Venezuela*. Instituto de Antropología e Historia, Universidad Central de Venezuela, Caracas.
- Meggers, Betty J., 1971, *Amazonia. Man and Culture in a Counterfeit Paradise*. Aldine, Chicago.
- _____, and Clifford Evans, 1983, Lowland South America and the Antilles. In *Ancient South America*, edited by Jesse Jennings, pp. 287–335. Freeman, San Francisco.
- Molina, Luis, 1990, *Animales Antediluvianos, Antigüedades Indias, Culturas. Contribución a la Historia de la Arqueología y Paleontología del Estado Lara, Venezuela 1852–1989*. CECOP-CONAC, Caracas.
- _____, 1998, Tras las huellas de animales antediluvianos. Pioneros de la paleontología y la arqueología en el Estado Lara, Venezuela. In *Historias de la Antropología en Venezuela*, edited by Emanuele Amodio, pp. 311–322. La Universidad del Zulia, Maracaibo.
- _____, and María Mercedes Monsalve, 1985, *Sicarigua. Estudio Preliminar del Modo de Vida y las Formas Agrarias en un Yacimiento Arqueológico del Noroeste de Venezuela*. Ediciones SOVAR, Caracas.
- Navarrete, Rodrigo, 1998, Raíces históricas del pensamiento arqueológico en Venezuela. Aspectos teórico-metodológicos y ético-políticos. In *Historias de la Antropología en Venezuela*, edited by Emanuele Amodio, pp. 355–371. La Universidad del Zulia, Maracaibo.
- _____, 1999, Latin American Social Archaeology: One Goal, Multiple Views. M.A. thesis. Department of Anthropology, State University of New York, Binghamton.
- _____, 2004, El pasado con intención. Hacia una reconstrucción crítica del pensamiento arqueológico en Venezuela (desde la colonia al siglo XIX). FACES (Universidad Central de Venezuela)-Trópikos, Caracas.
- Nieves, Fulvia, 1980, *La Fase Bañador. Investigaciones Arqueológicas en el Bajo Orinoco*. Universidad Central de Venezuela, Caracas.
- Nomland, Gladys A., 1935, Archaeological site of Hato Viejo, Venezuela. *American Anthropologist* (35): 718–741.
- Oliver, José R., 1989, The Archaeological, Linguistic and Ethnohistorical Evidence for the Expansion of Arawakan into Northwestern Venezuela and Northeastern Colombia. Ph.D dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- _____, and Charles Alexander, 2003, Ocupaciones humanas del Pleistoceno Terminal en el occidente de Venezuela. *Maguare* 17: 83–246.
- Oramas, Luis, 1934, Civilización de Venezuela precolombiana. *Boletín de la Sociedad Venezolana de Ciencias Naturales* 2 (18): 361–386.
- Osgood, Cornelius, 1943, *Excavations at Tocorón, Venezuela*. Yale University Press, New Haven.
- _____, and George Howard, 1943, *An Archeological Survey of Venezuela*. Yale University Press, New Haven.
- Ochsenius, Claudio and Ruth Gruhn (eds.), 1979, *Taima-Taima. A Late Pleistocene Paleo-Indian Hill Site in Northernmost South America*. South American Quaternary Documentation Program, Germany.
- Petrullo, Vincenzo, 1939, Archaeology of Arauquín. *Bulletin. Bureau of American Ethnology* 123: 291–5.
- Redmond, Elsa M., 1992, Savanna chiefdoms in Venezuela. *National Geographic Research and Exploration* 10: 422–439.
- _____, 1997, *Chiefdoms and Chieftaincy in the Americas*. University Press of Florida, Gainesville.
- _____, and Charles S. Spencer, 1990, Investigaciones arqueológicas en el piedemonte andino y los llanos altos de Barinas. *Boletín de la Asociación Venezolana de Arqueología* 5: 4–24.

- _____ and Charles S. Spencer, 1994, The cacicazgo: an indigenous design. In *Caciques and Their People: A Volume in Honor of Ronald Spores*, edited by Joyce Marcus and Judith F. Zeitlin, pp. 189–225. Anthropological Papers, No. 89. Museum of Anthropology, University of Michigan, Ann Arbor.
- Requena, Rafael, 1932, *Vestigios de la Atlántida*. Tipografía Americana, Caracas.
- Rojas, Aristides, 1907, *Obras Escogidas*. Garnier Hermanos, Paris.
- _____, 1942, *Humboldtianas*. Editorial Cecilio Acosta, Caracas.
- Roosevelt, Anna C., 1980, *Parmana. Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco*. Academic Press, New York.
- _____, 1987, Chiefdoms in the Amazon and Orinoco. In *Chiefdoms in the Americas*, edited by Robert D. Drennan and Carlos A. Uribe, pp. 153–186. University Press of America, Lanham.
- Rouse, Irving, 1939, *Prehistory in Haiti: A Study in Method*. Yale University Press, New Haven.
- _____, 1978, The La Gruta sequence and its implications. In *Unidad y Variedad: Ensayos Antropológicos en Homenaje a J. M. Cruxent*, edited by Erika Wagner and Alberta Zucchi, pp. 203–229. Instituto Venezolano de Investigaciones Científicas, Caracas.
- _____, and José M. Cruxent, 1963, *Venezuelan Archaeology*. Yale University Press, New Haven.
- Salas, Julio C., 1919, *Etnología Americana. Los Indios Caribe*. Editorial América, Madrid.
- Sanoja, Mario, 1969, *La Fase Zancudo. Investigaciones Arqueológicas en el Lago de Maracaibo*. Instituto de Investigaciones Económicas y Sociales, Universidad Central de Venezuela, Caracas.
- _____, 1979, *Las Culturas Formativas del Oriente de Venezuela. La Tradición Barrancas del Bajo Orinoco*. Academia Nacional de la Historia, Caracas.
- _____, 1981, *Los Hombres de la Yuca y el Maíz*. Monte Avila, Caracas.
- _____, 1982, *De la Recolección a la Agricultura*. Academia Nacional de la Historia, Caracas.
- _____, and Iraida Vargas, 1979, *Antiguas Formaciones y Modos de Producción Venezolanos*. Monte Avila, Caracas.
- _____, and Iraida Vargas, 1995, *Gente de la Canoa. Economía Política de la Antigua Sociedad Apropiaadora del Noreste de Venezuela*. Tropikos-Comisión de Estudios de Postgrado, Universidad Central de Venezuela, Caracas.
- Spencer Charles S., 1986, Prehispanic chiefdoms in the western Venezuelan llanos. *World Archaeology* 24: 134–157.
- _____, 1987, Rethinking the chiefdom. In *Chiefdoms in the Americas*, edited by Robert D. Drennan and Carlos A. Uribe, pp. 369–389. University Press of America, Lanham.
- _____, 1990, Coevolution and the development of Venezuelan chiefdoms. In *Profiles in Cultural Evolution: Papers from a Conference in Honor of Elman R. Service*, edited by A. T. Rambo and K. Gollogly, pp. 137–165. Anthropological Papers, No. 85. Museum of Anthropology, University of Michigan, Ann Arbor.
- Tamayo, Francisco, 1932, Ensayo sobre el arte pictórico de los Caquetíos y Goyones, con un bosquejo de la evolución del arte. *Boletín de la Sociedad Venezolana de Ciencias Naturales* 1 (10): 398–405.
- Tarble, Kay, 1982, *Comparación Estilística de Dos Colecciones Cerámicas del Noroeste de Venezuela: Una Nueva Metodología*. Ernesto Armitano Editor, Caracas.
- _____, 1984, Nuevos datos sobre la arqueología tardía del Orinoco: la serie valloide. *Acta Científica Venezolana* 35 (5–6): 434–445.
- _____, 1985, Un nuevo modelo de expansión Caribe para la época prehispánica. *Antropológica* 63–64: 45–81.
- Tartusi, Marta R., Antonio Niño and Víctor Nuñez Regueiro, 1984, Relaciones entre el área occidental de la cuenca del Lago de Maracaibo con las áreas vecinas. In *Relaciones Prehispánicas de Venezuela*, edited by Erika Wagner, pp. 67–88. Acta Científica Venezolana, Caracas.
- Tavera-Acosta, Bartolomé, 1930, *Venezuela Pre-coloniana. Contribución al Estudio de las Analogías Míticas, Idiomáticas y Religiosas de los Aborígenes Venezolanos con los del Continente Asiático*. Casa de Especialidades, Caracas.
- _____, 1956, *Los Petroglifos de Venezuela (1927–1930)*. Instituto de Antropología e Historia, Universidad Central de Venezuela, Caracas.
- Toledo, María Ismenia, 1985, Alfarería prehispánica en Lara. In *Wachakaresai: Lo Nuestro, La Historia que Duerme Bajo la Tierra*, pp. 58–74. Museo Arqueológico de Quibor, Quibor.
- _____, and Luis Molina, 1987, Elementos para la definición de los cacicazgos prehispánicos del noreste de Venezuela. In *Chiefdoms in the Americas*, edited by Robert D. Drennan and Carlos A. Uribe, pp. 187–200. University Press of America, Lanham.
- Vargas, Iraida, 1969, *La Fase San Gerónimo. Investigaciones Arqueológicas en el Alto Chama*. Instituto de Investigaciones Económicas y Sociales, Universidad Central de Venezuela, Caracas.

- _____, 1976, Introducción al estudios de las ideas antropológicas Venezolanas 1880–1936. *Semestre Histórico* 3: 15–175.
- _____, 1979, *La Tradición Saladoide del Oriente de Venezuela. La Fase Cuartel*. Academia Nacional de la Historia, Caracas.
- _____, 1981, *Investigaciones Arqueológicas en Parmana. Los Sitios La Gruta y Ronquín, Estado Guárico, Venezuela*. Academia Nacional de la Historia, Caracas.
- _____, 1986, Evolución histórica de la arqueología en Venezuela. *Quiboreña* 1 (1): 68–104.
- _____, 1988, Perspectiva histórica de la arqueología venezolana: aportes al conocimiento de la formación social tribal. In *Actas del Segundo Simposio de la Fundación de Arqueología del Caribe. Revisión Crítica de la Arqueología del Caribe*, edited by Iraida Vargas, pp. 85–120. Fundación de la Arqueología del Caribe, Washington, D.C.
- _____, 1990, *Arqueología, Ciencia y Sociedad. Ensayo Sobre Teoría Arqueológica y la Formación Económico Social Tribal en Venezuela*. Abre Brecha, Caracas.
- _____ and Mario Sanoja, 1993, *Historia, Identidad y Poder*. Trópikos, Caracas.
- Wagner, Erika, 1973, The Mucuchies Phase: an extension of the Andean cultural pattern into western Venezuela. *American Anthropologist* 75 (1): 195–213.
- _____, 1977, Campoma: una encrucijada cultural en el oriente venezolano. *Líneas* 241:16–21.
- _____, 1980, La prehistoria de Mucuchíes. *Montalbán* 10: 913–936.
- _____, 1988, *La Prehistoria y Etnohistoria del Area de Carache en el Occidente Venezolano*. Universidad de los Andes, Mérida.
- _____ and Lilliam Arvelo, 1989, La Prehistoria y Protohistoria del Estado Yaracuy, Venezuela y Sus Areas de Influencia. Décimotercer Congreso Internacional de Arqueología del Caribe, Curaçao. (ms).
- Willey, Gordon R., 1948, Functional analysis of “horizon styles” in Peruvian archaeology. In *A Reappraisal of Peruvian Archaeology*, edited by Wendell C. Bennett, pp. 8–15. Memoir 4. Society for American Archaeology, Menasha, WI.
- Zucchi, Alberta, 1966, Informe preliminar de las excavaciones del yacimiento La Betania, Estado Barinas, Venezuela. *Boletín Indigenista Venezolano* 10 (1–4): 155–168.
- _____, 1973, Prehistoric human occupations of the western Venezuelan llanos. *American Antiquity* 38 (2): 182–190.
- _____, 1975, *Caño Caroní. Un Grupo Prehispánico de la Selva de los Llanos de Barinas*. Universidad Central de Venezuela, Caracas.
- _____, 1984, Nueva evidencia sobre la penetración de grupos cerámicos a las Antillas Mayores. In *Relaciones Prehispánicas de Venezuela*, edited by Erika Wagner, pp. 35–50. Fondo Editorial Acta Científica Venezolana, Caracas.
- _____, 1985, Evidencias arqueológicas sobre grupos de posible lengua Caribe. *Antropológica* 63–64: 23–44.
- _____ and William M. Denevan, 1979, *Campos Elevados e Historia Cultural Prehispánica en los Llanos Occidentales de Venezuela*. Universidad Católica Andrés Bello, Caracas.
- _____ and Kay Tarble, 1984, Los cedeñoides: un nuevo grupo prehispánico del Orinoco Medio. *Acta Científica Venezolana* 35 (3–4): 293–309.

The Ecuadorian Formative

JAMES A. ZEIDLER

INTRODUCTION

The formal definition of the Formative Period in the New World began with the seminal work of Gordon Willey and Philip Phillips (1958) in their attempt to devise a historical-developmental periodization scheme for pan-hemispherical application. As Jorge Marcos has noted, this concept was largely “identical to what Gordon Childe had called the Early Neolithic” of the Old World (Marcos 2003:7), with connotations of agricultural production and sedentary village life. James A. Ford (1969) carried out the first detailed treatment of the concept for the Americas; he posed a unitary model of Formative development from maritime diffusion, which he pitted against an alternative explanation based upon the “psychic unity of man”. As Ford (1969: 9) defines it, the Formative Period consists of “the 3000 years (or less in some regions) during which the elements of ceramics, ground stone tools, handmade figurines, and manioc and maize agriculture were being diffused and welded into the socioeconomic life of the people living in the region extending from Peru to the eastern United States”. Such unitary diffusionist models were posited as early as 1917 by Herbert Spinden (1917, 1928), but were not systematically explored or championed until the work of Ford (1969) and, in more recent decades, various writings of the late Donald W. Lathrap (see, for example, Lathrap 1974, 1977, 1985, 1987; Lathrap et al. 1975), among others.

More recent archaeological research throughout the New World, however, has demonstrated that the Formative was neither a product of diffusion from a single source, as Ford would have it, nor was it a product of psychic unity. Rather, it should more properly be thought of as a complex series of independent, or at least semi-autonomous, hearths of innovation derived from Archaic antecedents in which sedentism, reliance on maize and/or manioc agricultural production, ceramics, polished stone tools, and handmade figurines, all came together as a comparable constellation of traits, but at vastly different rates and in different combinations at key sites throughout the New World (Clark and Knoll 2005). No simple unitary model of Formative development is now tenable, and the

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

New World Formative is currently viewed as anything but simple, whether one considers the origins of ceramic production (Hoopes 1994; Raymond, Oyuela, and Carmichael 1994; cf. Meggers 1997), the origins of agriculture (Clark and Knoll 2005; Perry et al. 2007; Piperno and Pearsall 1998), or the origins of sedentary village life and first towns in the Americas (Clark, Gibson, and Zeidler n.d.). Attention is instead focused on discrete environmental contexts and on specific historical processes of development within each of the independent hearth areas, while keeping in mind potential evidence of contact and exchange relations between them.

Ecuador in the Formative Period represents one of these independent hearth areas in New World prehistory, one where sedentary village life, ceramic production, maize/manioc agriculture, polished stone tool production, and figurine ideology came together at a fairly early time range. Even within the northern Andean region, however, both the origins and eventual development of Formative Period cultures were uneven phenomena at best, and as we shall see, the coast seems to have outpaced the highlands and eastern lowlands in terms of population densities and social complexity. Space limitations preclude a detailed treatment, but interested readers are urged to consult recent summaries of Formative Period archaeology such as Raymond and Burger (2003) and Idrovo Urigüen (1992) for the entire country, Staller (2001) for the coastal region, and the five Ecuadorian contributions in Ledergerber-Crespo (1999) for selected regions of the country. Even as these recent works provide up-to-date summaries of archaeological knowledge, new discoveries are constantly coming to light, both from scientific archaeological research and, unfortunately, from commercial looting and antiquities trafficking.

For a recent summary of absolute dating and cultural chronology for the Ecuadorian Formative, the reader is referred to the four appendices in Raymond and Burger (2003a), which respectively cover the coast and western lowlands (Zeidler 2003), the northern highlands (Lippi 2003), the eastern lowlands (Rostoker 2003), and the southern highlands (Raymond 2003b). Since the coastal lowlands have received a greater amount of archaeological study, the cultural sequence established there provides a useful referent for discussion of Formative Period occupations elsewhere in the country. The general cultural chronology for this area is summarized in Table 24.1, based on the compilation of radiocarbon determinations in Zeidler (2003).

This chapter begins with a summary of the Formative Period cultures known for the coast and western lowlands: the Valdivia, Machalilla, and Chorrera cultures. Following that, I consider the Formative Period manifestations in the northern, central, and southern highlands, and the eastern lowlands or oriente. Figure 24.1 shows the locations of the various archaeological areas and sites discussed in the text.

Table 24.1. Formative Period Chronology for the Western Ecuadorian Lowlands.

Sub-Period	Cultural Manifestation	Range B.C.
Early Formative	Valdivia	4400-1450 cal B.C.
Middle Formative	Machalilla	1430-830 cal B.C.
Late Formative	Chorrera	1300-300 cal B.C.



Figure 24.1. Map of Ecuador showing locations of sites mentioned in the text. (James Zeidler)

FORMATIVE CULTURES OF THE COAST AND WESTERN LOWLANDS

Valdivia

The Valdivia culture occupied the western lowlands and coastal region of Ecuador during the Early Formative Period and represents the beginnings of settled village life in that area. Originally identified in 1956 at the type-site of Valdivia in coastal Guayas Province by Emilio Estrada (1956, 1958), it was subsequently investigated by Smithsonian Institution archaeologists Betty Meggers and Clifford Evans in the late 1950s. The type-site (G-31)

is situated at the mouth of the Valdivia river valley, immediately adjacent to seashore and estuary habitats (Figure 24.1). Cultural refuse pertaining to the Valdivia occupation covers some 1.7 ha on the slope and base of a low spur. In 1961, deep excavations were conducted here by thick arbitrary levels and yielded abundant remains of Valdivia pottery, “Venus” figurines, chipped stone artifacts, fire-modified rock, and faunal material of terrestrial, fish, and shellfish species. No visible stratigraphy was recognized during excavation, however, and no archaeological features were identified. On the basis of the unique ceramic artifacts and associated radiocarbon dates the investigators established a four-phase ceramic sequence (Phases A through D) that was thought to represent continuous developmental change through time. Since the Phase A ceramic assemblage was considered at the time to represent the earliest pottery in the New World, its relative sophistication raised the question of origins. This led the investigators to hypothesize a trans-Pacific diffusion of this pottery tradition from the Middle Jomon forager/collector culture (ca. 3500-2500 B.C.) from the Kyushu region of Japan. Their argument for ceramic similarities was subsequently challenged by a number of scholars on stylistic grounds. The timing of the proposed contact (about 3000 BC) was eventually refuted in the early 1970s by the discovery of Valdivia ceramics (early Phase 1) which pre-dated their Phase A at such sites as Loma Alta (Figure 24.1), a village site located 9 km up the Valdivia Valley, and Real Alto in the Chanduy Valley farther south. Valdivia Phase 1 is now dated to 4400-3300 BC (Zeidler 2003) and would thus fall in the latter half of the Early Jomon Period (5300-3500 BC) (see Kobayashi [2004: fig. 3.9] for periodization of Jomon pottery styles).

Although Meggers has maintained a vigorous defense of the Jomon-Valdivia hypothesis for the origins of New World ceramics over the years (see Meggers 1987, 1992, 1997, 2005), her arguments remain at odds with current archaeological knowledge of Valdivia society as well as early South American ceramic complexes. Most Valdivia scholars would argue for an autochthonous development of early Valdivia ceramics using simple “skeuomorph” vessel forms and decorative motifs derived from gourd vessels and woven basketry (Álvarez et al. 1995; Marcos 2003, 2005). In this scenario, the early trade and dispersal of useful domesticated plants (Clark and Knoll 2005; Piperno and Pearsall 1998) may have spread the *idea* of pottery making from antecedent ceramic complexes in the Amazon Basin (e.g., Roosevelt 1995; Roosevelt et al. 1991). In short, technological convergence or parallelism would seem to be a more parsimonious explanation for the beginnings of Valdivia pottery than trans-Pacific diffusion from the Jomon culture.

Both the littoral location of the Valdivia type-site and its obvious reliance on marine and estuarine subsistence resources prompted the first investigators to prematurely characterize the entire Valdivia culture as a semi-sedentary maritime adaptation of egalitarian fishermen and shellfish gatherers having only a marginal reliance on horticulture. Subsequent research at other important coastal sites, such as San Pablo, Real Alto, and Salango, as well as inland sites, such as Loma Alta, Colimes, and San Lorenzo del Mate (Figure 24.1), has promoted considerable rethinking about the nature of Valdivia culture, including its origins, settlement-subsistence system, social organization, and cosmological beliefs. Lathrap (1970: 67) has persuasively argued that Valdivia represents a “tropical forest culture” pattern with an essentially inland riverine settlement focus whose ultimate origins are linked to early population dispersals from the Amazon basin. Newer subsistence data indicate a mixed economy of floodplain horticultural production (based on maize, beans, root crops, cotton, chili peppers, and gourds [Pearsall 1988b, 2003; Perry et al. 2007]), hunting, fishing, and the gathering of wild plants and shellfish. Certain shoreline settlements, such as the type-site, and island localities, such as El Encanto (Porrás 1974), are viewed as sites

specialized in the exploitation and exchange of maritime and estuarine resources. Perhaps more importantly, these studies have shed new light on Valdivia chronology and the pace of social change during its 2,000-year time span. An 8-phase ceramic sequence established by Betsy Hill (1972–74) has permitted a more precise delineation of temporal trends in regional settlement patterns and intra-site spatial organization (Alvarez et al. 1995; Marcos 1988, 2003, 2005; Marcos et al. 1998; Zeidler 1984, 1991).

Excavations at Real Alto (Figure 24.2), in particular, have helped transform our understanding of Valdivia society in terms of chronology and social change, community plan and settlement pattern evolution, household organization, funerary ritual, and the nature of Valdivia agricultural production (Damp 1984, 1988; Lathrap et al. 1977; Marcos 1988, 2005; Pearsall 1988a; Zeidler 1984). Careful stratigraphic excavation of cultural features permitted the identification of discrete occupations within the village configuration and revealed progressive shifts toward greater population density, increased reliance on cultivated plants, and greater socio-political complexity.

The Early Valdivia village was laid out in a horseshoe shape with small flimsy bent-pole dwellings forming a ring around a small open plaza. Each dwelling probably housed a nuclear family. At the opening of the U-shaped plan is evidence of ritual activity, presumably of a communal nature. By Phase 3, the Real Alto village grew to a maximum size of 12.4 ha through a doubling of the previous U-shaped configuration into an elliptical plan measuring 400 m × 300 m. Dwellings again form a dense ring around a long plaza, but the house structures become much larger and more permanent in their construction, indicating extended family dwellings having considerable longevity. At the center of the new configuration are two small opposing mounds each supporting a ceremonial structure. To the west is a specialized funerary facility or “charnel house,” while the eastern mound supported a

Valdivia Occupation at Real Alto

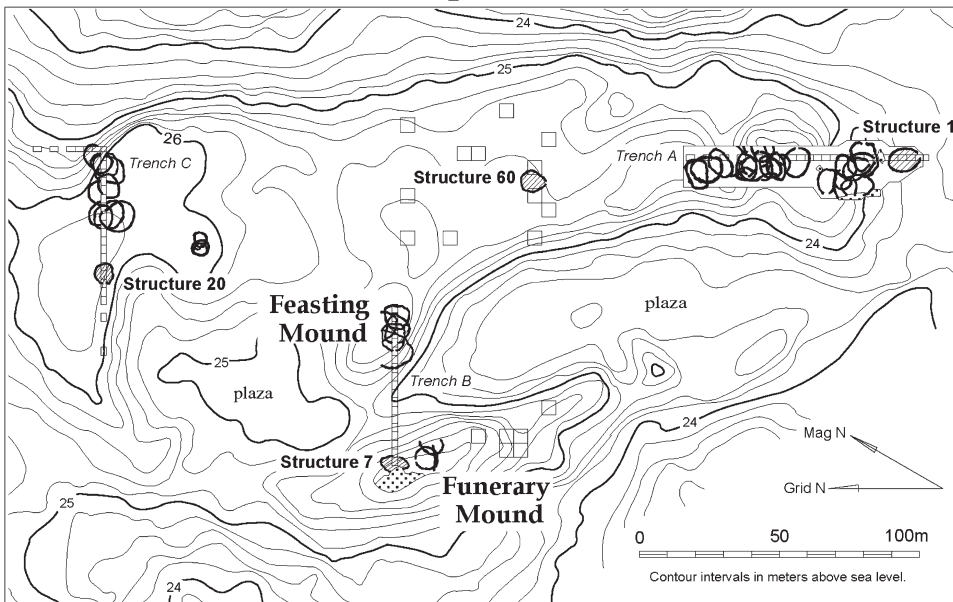


Figure 24.2. Map of the Real Alto site, coastal Guayas province. (James Zeidler)

communal structure having ritual functions, judging from its internal midden refuse. By Late Valdivia times (Phases 6–7), habitation area becomes reduced within the village, as small daughter settlements appear adjacent to floodplain agricultural plots and the ceremonial precinct begins to serve a wider local area.

As a result of this research, it is now clear that Valdivia represents a dynamic, fully sedentary society of village horticulturalists characterized by progressive demographic growth and an increasing degree of social ranking and status inequality through time. Beginning as early as Middle Valdivia times, long-distance maritime as well as terrestrial trade may have provided an impetus for social change leading to greater complexity in the later Valdivia phases. Evidence for obsidian trade with the Quito basin exists at Real Alto by Phase 7 (Marcos et al. 1998) and at San Isidro in Phase 8 (Zeidler and Pearsall 1994). Agricultural production throughout the sequence is diversified, with both maize and a variety of root crops being staples. Maize as well as a series of root crops (manioc, achira, arrowroot, and llerén) are ubiquitous in both domestic and ceremonial contexts as early as Phase 3 (Pearsall et al. 2004; Chandler-Ezell et al. 2006) when Real Alto attains its full size (12.4 ha.) as a nucleated town (Lathrap et al. 1977; Zeidler 1984; Clark et al. n.d.). To this suite of Phase 3 cultigens, we can now add chili peppers (Perry et al. 2007). Studies of skeletal biology at Real Alto (Klepinger 1979; Ubelaker 2003) reveal a slight decline in overall health, nutrition, and life expectancy from preceramic Vegas times (on Vegas see Stothert 1985), probably associated with sedentism and developing agriculture. A relatively high incidence of dental caries may be associated with extensive maize consumption, although other foods may also have been cariogenic. Ubelaker (2003) also has noted a high incidence of bone trauma in the Real Alto population, suggesting intergroup conflict or perhaps domestic violence.

Beginning in Middle Valdivia (Phase 3) times, settlements appear on La Plata Island and Puná Island, attesting to the development of efficient watercraft capable of open-sea voyaging. There is also evidence of a progressive geographic expansion of Valdivia peoples to the north, east, and south out of the coastal Guayas Province heartland. By Late Valdivia times, Phase 6/7 occupations extended northward into central and southern Manabí Province, eastward into Los Ríos Province in the Guayas basin proper, and southward into southern Guayas and El Oro provinces. This colonization process culminated in Terminal Valdivia times (Phase 8), when large inland ceremonial centers with satellite communities appear in the wetter environments to the north, east, and south, where they became more heavily reliant on agricultural production. Both the San Isidro site in the Jama Valley of northern Manabí (Piquigua Phase) (Zeidler and Pearsall 1994) and the La Emerenciana site in El Oro (Jelí Phase) (Staller 1991, 2001) represent large Phase 8 civic-ceremonial centers with monumental public architecture of a magnitude not seen in earlier Valdivia phases (Figure 24.1). Large Valdivia 8 sites have also been documented far inland in the Guayas Basin, such as at La Cadena in Los Ríos Province and at Peñón del Río in Guayas Province (Marcos 2003). In contrast, Phase 8 sites in the Santa Elena Peninsula area appear to be small hamlets dispersed in linear fashion along major and minor watercourses, and no significant Phase 8 ceremonial centers have been located in this area.

New evidence of Piquigua Phase occupations is now appearing in far northern Manabí Province at such inland sites as Atahualpa on the Coaque River (Figure 24.1). Here, a complex Valdivia 8 ceramic assemblage is found in association with an elaborate lapidary industry comprised of carved stone plaques with geometric motifs (Figure 24.3) and two- and three-dimensional anthropomorphic stone sculptures with avian (possibly owl) imagery (Figure 24.4). Detailed surface inspection of two different sites by this author



Figure 24.3. Fragments of Valdivia 8 (Piquigua Phase) stone plaques with engraved geometric designs, from the Atahualpa site (N3A1-001), Coaque river valley, northern Manabí province. (James Zeidler)



Figure 24.4. Two Valdivia 8 (Piquigua Phase) paired stone plaques in bas-relief with deeply excised zoomorphic carvings of owls, from the Atahualpa site (N3A1-001), Coaque river valley, northern Manabí province. (James Zeidler)

revealed single-component deposits containing only Piquigua Phase (Valdivia 8) ceramic materials in direct association with abundant fragments of incised and carved stone plaques, along with bone, shell, obsidian and other chipped stone debris, and ground stone materials. The stone plaques exhibit a variety of incised and excised lines in cruciform designs sometimes in combination with complex punctate motifs that may represent celestial phenomena (cosmograms?) (Hirtz 2001). The owl-like images are found as far north as Dogola and Chebe, close to the Manabí/Esmeraldas border. While similar incised stone plaques are now being falsified for sale on the art and antiquities market, true archaeological specimens can be readily distinguished in the field by heavy mineralization resulting in the formation of calcium carbonate incrustations and fine manganese veining on the surface.

Sometime around 1900 BC, a massive volcanic eruption emanating from the Ecuadorian highlands blanketed a large swath of the western lowlands with a tephra mantle so thick that Early Formative lifeways were completely devastated and resident populations of northern Manabí were forced to either migrate or succumb to asphyxiation and/or famine (Zeidler and Isaacson 2003). The footprint of this eruption is still not well understood, but its effects have been well documented in the Jama Valley of northern Manabí, where the Piquigua Phase peoples abruptly disappeared and the valley was abandoned for over 600 years (Zeidler 1994; Zeidler, Buck, and Litton 1998; Zeidler and Isaacson 2003).

Machalilla

The Machalilla culture, representing the Middle Formative of coastal Ecuador, was initially identified by Bushnell (1951) in excavations on the Santa Elena Peninsula, but was later named by Estrada (1958) on the basis of his early work at the type site of Machalilla on the southern Manabí coast (Figure 24.1). A more formal description can be found in Meggers, Evans, and Estrada (1965). Its spatial distribution is decidedly coastal and is somewhat more restricted than that of Terminal Valdivia (Phase 8) sites. As a contiguous spatial unit, it basically extends from the Chone River in central Manabí southward along the coastal strip to the Punta Arenas Peninsula in southern Guayas Province. There is also a discontinuous manifestation of Machalilla in far northern Manabí and southern Esmeraldas Province (Villalba et al. 2006), as well as in the Arenillas River area of El Oro Province farther south (Staller 2001) (see Figure 24.1). Curiously, Machalilla has not been found in systemic archaeological survey and site testing in the Jama Valley of northern Manabí Province. It is possible that the lower portion of northern Manabí was deemed uninhabitable by the Machalillans due to eroding volcanic ash mantles from the Tephra I eruption that devastated the Valdivia 8 populations in this area.

Estrada (1958) correctly placed Machalilla culture chronologically later than Valdivia, and more recent research has confirmed this relationship, with several authors making convincing arguments that the Machalilla ceramic style evolved directly out of the Late and Terminal Valdivia ceramic style. Two sites in particular demonstrate the nature of this Valdivia-Machalilla transition: San Lorenzo del Mate in southern Guayas Province (Cruz and Holm 1982; Marcos 1989), and La Emerenciana in El Oro Province (Staller 1984; 2001) (Figure 24.1).

Machalilla ceramics include a variety of bowl, olla, and bottle forms having antecedents in Terminal Valdivia, but a new vessel form appears as well: the stirrup-spout bottle (Lathrap, Collier and Chandra 1975: figs. 31, 34). Several decorative techniques as well

as design motifs also continue from Terminal Valdivia times such as fine-line engraving with zoned punctation on carinated bowls or notching along the carination, but the forms themselves begin to diverge from their Valdivia counterparts. Highly burnished blackwares with fine-line engraving are diagnostic of Machalilla typically on thin-walled bowl forms. Red-on-buff painting also becomes a common decorative technique both on the exteriors of large globular ollas and on the interiors and exteriors of deep carinated bowl forms. As mentioned above, bottle forms become prevalent with both stirrup-spout bottles and double spout and bridge bottles occurring. Both solid and hollow modeled ceramic figurines are found in Machalilla, but are much less common than those from the preceding Valdivia culture. Round-headed figurines with “coffee-bean” eyes and perforated ears become typical of Machalilla, with head and face well represented, but the body less well defined. Their generally small size suggests handling and ritual use similar to that suggested for Valdivia figurines. However, in recent years, gigantic (ca. 80 cm), well-made, hollow, Machalilla figurines are appearing in clandestine excavations in far northern Manabí Province that suggest a more representational or iconic form more typical of the well-preserved Chorrera figurines discussed by Cummins (2003).

Numerous authors have commented on stylistic similarities between Machalilla ceramics and various Formative manifestations in the highlands, most especially with the early ceramics from the sites of Cotacollao in Pichincha Province (Villalba 1988), Alausí in Chimborazo Province (Porrás 1977), Cerro Narrío in Cañar Province (Bruhns 2003), and Catamayo B in Loja Province (Guffroy 2004). Such similarities in ceramic traits are the result of long-distance trade relations between the coastal lowlands and various Formative cultures of the adjacent highlands, minimally involving *Spondylus* and other marine shell (both in raw form and as finished ornaments) exchanged for obsidian and other highland products. These relationships will be discussed in greater detail in the next section. Ceramic affinities with contemporary groups much farther afield also have been noted, and long-distance maritime trade relations have been suggested with Peru and with western Mesoamerica (Lathrap et al. 1975).

With respect to settlement patterns, there appears to be a shift in site distribution as well as social hierarchy when compared to the previous Valdivia occupation. During Machalilla times, we find no large civic-ceremonial centers or evidence of mound building (Zeidler 1986). Rather, in riverine areas, we find small hamlets or homesteads dispersed along higher ground adjacent to alluvial floodplains. In the Rio Verde Valley near Real Alto, such sites were very small, averaging 0.46 ha. in size (Zeidler 1986), while in the Valdivia Valley farther north, sites ranged from scattered small hamlets to large nucleated villages (Lippi 1983; Schwarz and Raymond 1996). Larger riverine sites such as La Ponga (Lippi 1983; Porrás 1983) were generally located in or immediately adjacent to fertile bottomland localities. Littoral sites tend to be somewhat large and are generally located on hilltops or higher ground overlooking the sea, with subsistence practices focused heavily on maritime resources. No domestic structure plans have been reported, but Zeidler (1986) documented two partial Machalilla house floors in section during site-testing in the Rio Verde drainage, indicating floor deposits between 20–30 cm thick as well as the presence of sub-floor hearths and a sub-floor pit.

The Machalilla peoples appear to have continued the subsistence adaptation of their Valdivia predecessors, practicing a mixed economy heavily reliant both on maritime resources as well as a mixed farming economy based on maize and achira (Pearsall 2003), and probably other root crops and tree fruits as well. The hunting of terrestrial mammals, especially deer, also provided an important component of the Machalilla diet.

Chorrera

The Late Formative Chorrera culture was first defined somewhat independently in the Guayas basin at the type-site of La Chorrera (site R-B-1) on the Babahoyo River (Evans and Meggers 1954, 1982) and on the Guayas coast at the site of La Carolina (OGSE-46D or Engoroy Cemetery) on the Santa Elena Peninsula (Bushnell 1951) (Figure 24.1). It is considered the most geographically widespread of Ecuador's prehispanic cultures, covering the entire coastal lowlands and extending its influence into the Andean highlands. Some debate still exists over the extent to which Chorrera represents a true "cultural horizon" characterized by stylistic unity in ceramic manufacture (albeit encompassing some regional variation), or whether the numerous Late Formative regional variants are better understood as independent regional archaeological cultures. Several such regional variants have now been defined archaeologically, including, from north to south, the Mafa Phase in northern Esmeraldas Province, the Tachina Phase in southern Esmeraldas Province, the Tabuchila Phase in northern Manabí Province, the Engoroy Phase on the Santa Elena Peninsula and Guayas coastal area, "Chorrera proper" occupying the Guayas basin as well as the central and southern Manabí coast, the Early Jubones Phase in far southeastern Guayas and western Azuay Province, and finally, the Arenillas Phase in El Oro Province. Strong Chorrera influence is also argued for regions farther afield such as the Late Cotacollo Phase in the Quito basin, Early Narrío Phase at the sites of Cerro Narrío, Pirincay, and Challuabamba in Azuay and Cañar provinces, and Catamayo Phase C in Loja Province. Most recent discussions of Chorrera culture acknowledge a certain degree of stylistic unity in ceramic manufacture as a generalized cultural manifestation (e.g., Beckwith 1996; Cummins 2003; Engwall 1992, 1996; Staller 2001). Yet both the nature of this stylistic unity and the regional variation apparent in other ceramic traits, as well as inter-regional temporal relationships, are in need of further study and explanation.

The hallmarks of Chorrera culture which set it apart from its Early and Middle Formative predecessors in the coastal lowlands are its ceramic vessels (see examples in Lathrap et al. 1975: 34–37), particularly its zoomorphic and phytomorphic effigy bottles with whistling spout-and-strap handle, and its large, mold-made, anthropomorphic figurines (Cummins 2003). The latter have been described by Lathrap as "a high point in the ceramic art of the New World" (Lathrap et al. 1975:41). However, even the Chorrera utilitarian wares are well-made, thin-walled, and generally exhibit highly polished red slipped or black surfaces and elaborate decoration when compared to their Valdivia and Machalilla predecessors (see Beckwith 1996; Engwall 1992, 1995; Evans and Meggers 1982; Lathrap et al. 1975; Zedeño 1986). Bowl forms include carinated vessels with annular bases as well as medium and deep bowls with incurved rims. Olla forms are generally globular or sub-globular with a wide mouth and a sharply everted rim with prominent interior carination. Another diagnostic jar form is the squat, wide-mouthed "cuspidor" olla with a sub-globular or lenticular body, low in-sloping neck, and a short exterior-thickened lip. Decorative techniques are quite varied and include fine-line engraved and incised designs, rocker stamping, pattern burnishing, as well as iridescent painting in stripes and dots and red-on-buff, red-on-black, and red-on-white painting. Fancier effigy vessels also exhibit elaborate modeling of anthropomorphic, zoomorphic, and phytomorphic imagery. The mold-made anthropomorphic figurines are noteworthy in that, according to Cummins (2003), they embody iconic representations that were meant to be viewed as figural sculptures, rather than hand-manipulated and ritually destroyed as in the case of the small, solid, Valdivia "Venus" figurines. Other ceramic items appear at this time such as decorated ear spools and ceramic stamps (both

flat and roller type) possibly used for body painting. Both the ear spools and body painting are prominently depicted on many of the hollow anthropomorphic figurines (see Lathrap et al. 1975; Cummins 2003).

Several scholars having interest in the Late Formative period of Ecuador have bemoaned the fact that few data exist with respect to Chorrera settlement patterns, community structure, domestic architecture, or ceremonial architecture, thus rendering most interregional comparisons dependent almost exclusively on ceramic traits. While this is still largely true, settlement data from systematic regional survey in the Jama Valley of northern Manabí Province (Zeidler 1995; Zeidler and Pearsall 1994; Zeidler and Isaacson 2003) at least shed light on one area of coastal Ecuador where Chorrera culture saw a major florescence in the Tabuchila Phase (Cummins 2003; Engwall 1992, 1995; Zeidler and Sutliff 1994). Here, archaeological survey of a 785 km² study area located some 239 archaeological sites. As Figure 24.5 illustrates, some 33 Tabuchila Phase sites or site components have been identified through random quadrat sampling. Twenty-five occur in the principal alluvial areas of

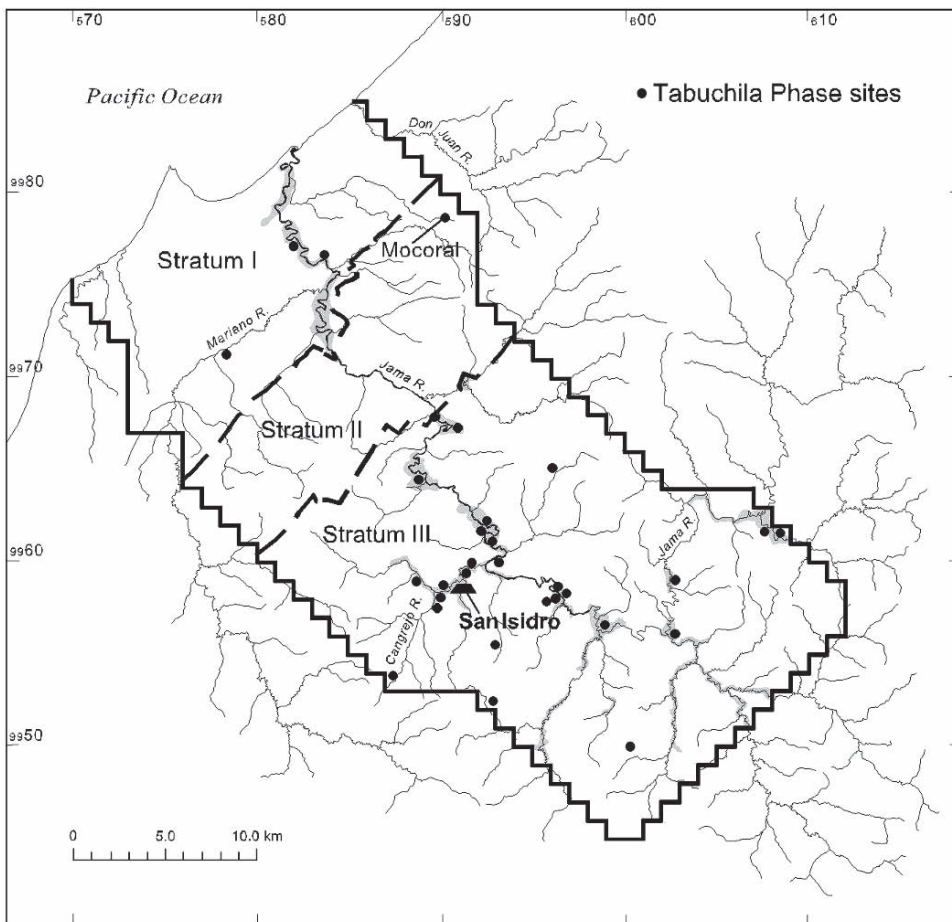


Figure 24.5. Distribution of Chorrera (Tabuchila Phase) sites in the Jama river valley, northern Manabí province. Survey involved random quadrat sampling and 100% coverage of floodplain zones. (James Zeidler)

the valley, and 8 are located in upland zones or along higher elevation tributary alluvium (Zeidler 1995). As was the case with the preceding Valdivia 8 (Piquigua Phase) occupation of the Jama Valley, the site of San Isidro in the middle reaches of the drainage again functioned as the principal ceremonial center and the single platform mound at the center of the site (Zeidler 1994: figs. 5.1, 5.2) was enlarged by new mound construction. The majority of sites occur in the middle reaches of the valley, with only a few in the lower valley and none adjacent to the coastal strip. Perhaps the most interesting change in settlement pattern over Piquigua site distributions is the occurrence of small upland sites. These very likely represent a major settlement expansion as a consequence of valley “in-filling” in the major alluvial pockets of the main Jama River channel and its larger tributaries. It may also represent the introduction of a new agricultural practice: long-fallow swiddening on the forested hillslopes (Pearsall and Zeidler 1994; see also Pearsall 2004). Thus, the Chorrera occupation of the valley resulted in significantly greater population densities over the Piquigua occupation even if the floodplain zones retained a similar number of sites. This bifurcation in settlement pattern—characterized by floodplain in-filling and upland expansion—resulted in a more complex settlement hierarchy centered at the San Isidro site and also established a dual agricultural system of floodplain farming and long-fallow swiddening of upland terrain. Based upon these factors, the expanded mound building at San Isidro, and the elaborate material culture exhibited by the Tabuchila peoples (Cummins 2003; Engwall 1992, 1995; Zeidler and Sutliff 1994), it seems reasonable to posit “the early emergence of a localized stratified chiefdom” at this time (Zeidler and Isaacson 2003:110). This assessment is also consistent with the discovery of complex ceremonial architecture at the Salango site on the southern Manabí coast dating to Chorrera/Engoroy times (Lunnis 2001).

With respect to Chorrera subsistence, there is comparatively little information when considering the vast geographic expanse of this cultural phenomenon. As with the settlement data, our best information comes from the Tabuchila Phase of northern Manabí Province (Pearsall 1994a, 1994b, 2003, 2004; Pearsall and Stahl 1996; Stahl 1994, 2003). The suite of likely cultigens was similar to that of the previous Piquigua phase and included maize (*Zea mays*), common bean (*Phaseolus vulgaris*), squash or gourd (Cucurbitaceae), and the root crops achira (*Canna*) and arrowroot (*Maranta*). Wild plant products are also present and included sedge (Cyperaceae), palm (Palmae), and a variety of tree fruits. These remains have been identified in Tabuchila phase components at four different sites: San Isidro, Finca Cueva, and Dos Caminos in an alluvial floodplain setting, and Mocoral in an upland locality. Exploitation of local terrestrial fauna during the Tabuchila phase included armadillo, rabbit, duck, peccary, both white-tailed and brocket deer, a variety of rodents, as well as amphibians (frogs/toads) and reptiles (lizards). The presence of burnt fish bone of the marine Carangidae family (jacks/pompanos) in Tabuchila deposits at San Isidro attests to exchange with the coast some 25 km to the northwest. While it would be a mistake to extrapolate these subsistence data across the Chorrera geographic spectrum, it is clear that Chorrera economy was based on a firm agricultural foundation centered on maize and a variety of root crops.

Following a tradition established in Valdivia and Machalilla times, Chorrera peoples appear to have also maintained a lively trade in exotic products with the adjacent Ecuadorian highlands, resulting in strong Chorrera influences in the northern and especially the southern highlands. With respect to the northern highlands exotic coastal items such as spiny oyster shell (*Spondylus*), and other marine shell, was no doubt exchanged for obsidian from the Quito basin (Quiscatola/Yanaurco). A much wider range of material culture items, as well as esoteric knowledge were very likely exchanged between these two regions, but have left little in the way of archaeological evidence.

The Chorrera culture was dramatically impacted by the eruption of Pululahua Volcano, located near the equatorial line north of Quito, at around 467 BC. Volcanic ash emanating from this massive Plinian eruption blew in a south-westerly direction and blanketed much of the western Ecuadorian lowlands from southern Esmeraldas Province southward through northern Manabí and the upper Guayas basin to southern Manabí Province. Chorrera manifestations within this massive eruptive footprint (Zeidler and Isaacson 2003: fig. 21) were truncated, while other Chorrera variants to the north and south were able to continue their existence for a few centuries in some areas (Zeidler 2003) until they were gradually replaced by more complex regional cultures of the Regional Developmental Period at around 200–300 BC.

FORMATIVE MANIFESTATIONS IN THE HIGHLANDS

Recent overviews of the Formative Period in the Ecuadorian highlands can be found in Bruhns (2003) and Idrovo Urigüen (1999). As mentioned in the introduction, our current state of archaeological knowledge indicates a more densely populated geographic area with perhaps more sociopolitically complex societies for the western Ecuadorian lowlands during the Formative Period when compared to the Ecuadorian highlands. However, it remains difficult to determine whether this was a reality of Formative Ecuador, or whether it might be at least in part due to very different intensities of archaeological investigation in the two areas. We must always bear in mind that great areas of the Ecuadorian highlands are still largely unstudied when compared to the coast. In addition, archaeologists working in the northern and central portions of the highlands must often contend with deeply buried Formative Period occupations either completely buried by, or intercalated with, a bewildering array of volcanic deposits emanating from several different source volcanoes and eruptive episodes, thus making site discovery and excavation more difficult. While it may be that the Formative begins much later in the highlands than in the western lowlands, we may want to reserve judgment on issues of relative population density and sociopolitical complexity until more archaeological research on the highland Formative is completed.

It is also worth noting that in the highlands we do not find the relatively uniform and geographically expansive cultural manifestations that we find in the western lowlands, such as Late Valdivia, Machalilla, or Chorrera. Rather, with the possible exception of Coto-collao, cultural entities in the highlands are generally known and discussed in terms of single sites, as we shall see below. Interestingly, even sites in relatively close proximity often show remarkable differences in ceramic style alongside any similarities that one might expect. And where attempts have been made to treat a generalized ceramic style or cultural tradition as extending beyond a given site, such as a Cerro Narrío “style” or a Challuabamba “tradition,” there is still no consensus that either should be understood as an *archaeological culture* in the same sense as Valdivia, Machalilla, or Chorrera. Given these differences with the western lowlands, the following three sections provide a brief summary of current archaeological knowledge by general geographic area for the northern, central, and southern highlands, respectively.

The Northern Highlands

Perhaps the best known Formative Period manifestation in the northern highlands is the site of Cotocollao located in a modern urbanization to the north of Quito (Villalba 1988; see also Porras 1982) (Figure 24.1). Here, Villalba (1988) encountered a large village site with a

calibrated time span of 1800 to 400 cal BC (Lippi 2003), subdivided into four ceramic phases (Cotocollao 1a, 1b, 2a, 2b). It thus overlaps in time with Terminal Valdivia, Machalilla, and Chorrera in the coastal chronology. Intensive salvage excavations yielded abundant data on settlement plan, domestic architecture, mortuary practices, skeletal biology and health, agricultural production, as well as ceramic manufacture, chipped stone manufacture, and a developed lapidary industry focused on the production of decorated stone bowls (Villalba 1988). Of particular interest are the floor plans of domestic architecture. The earliest occupation of the site revealed a settlement plan of closely spaced rectangular houses defined by linear alignments of postholes as well as interior hearths and storage features (Figure 24.6). Two to three large centrally aligned posts probably supported a central roof beam with thatched roof, and the walls of the structure were probably finished in wattle-and-daub. One complete floor plan measures some 8 m in length by 5 m in width for a total floor area of 40 m². No evidence of public or ceremonial architecture was found, although Villalba (1988:108) suggests that ritual behavior was oriented toward a large central cemetery area.

Cotocollao ceramics are made up of some 34 vessel classes which include a variety of ollas and jars, incurving and open bowls forms, and several bottle forms, including the classic stirrup-spout, the Cotocollao-type with spout-and-loop handle, and the Chorrera-type with spout-and-strap handle. Decorative techniques include red slipping and a wide range of plastic decoration such as incision, excision, punctation, notching, and appliqué fillets with notching. Notching on the carinations of bowl forms is a trait shared with the coastal Machalilla culture.

Lithic artifacts include flaked obsidian tools, a variety of ground and pecked stone tools including manos, metates, mortars, pestles, axes, and elaborate stone bowls with incised geometric decorations and notched ridges on the outer walls, thought to have a ceremonial function. While the lapidary industry centered on stone bowls and mortars is a general trait shared with the coastal site of San Isidro (Zeidler 1988), no elaborate zoomorphic mortars characteristic of Terminal Valdivia and Chorrera components at San Isidro are found in Cotocollao. Moreover, the Cotocollao stone bowls are much larger, thick-walled, and made of rough basalt, while the San Isidro stone bowls are small, thin-walled cups made of green stone, highly polished andesite and serpentinite. While both sets of vessels no doubt served a ceremonial function, their morphological differences suggest that those particular functions may have been different.

With respect to foodways, the Cotocollao peoples had a fully agricultural subsistence base (Villalba 1988; Pearsall 2003) consisting of maize, potatoes, achira, oca, quinoa, beans, and chochos (*Lipinus* spp., a bean-like vegetable from the Fabaceae family, known in Peru as tarwi). Maize was recovered in both the phytolith and carbonized samples and shows marked similarities to maize recovered from the contemporaneous highland sites of La Chimba and Nueva Era. A wide variety of vertebrate fauna was exploited although hunting appears to have focused on white-tailed deer and rabbit. Other species recovered include dove and parrot, opossum, long-tailed weasel, puma, llama, guinea pig, paca (*Agouti paca*: a large, edible member of the Rodentia family), and leaf-eared mouse (Villalba 1988; Stahl 2003).

It is important to note that Cotocollao was not an isolated site. On-going survey by Villalba elsewhere in the Quito Valley and in the Los Chillos and Tumbaco valleys to the east have resulted in the discovery of more than seventy Cotocollao sites. It remains unclear, however, how they interacted and what their relationship might have been with the Cotocollao type site. All of them, however, succumbed to the devastating effects of the Pululahua eruption around 400 BC.

Domestic Structures from Early Phase Occupation at Cotocollao

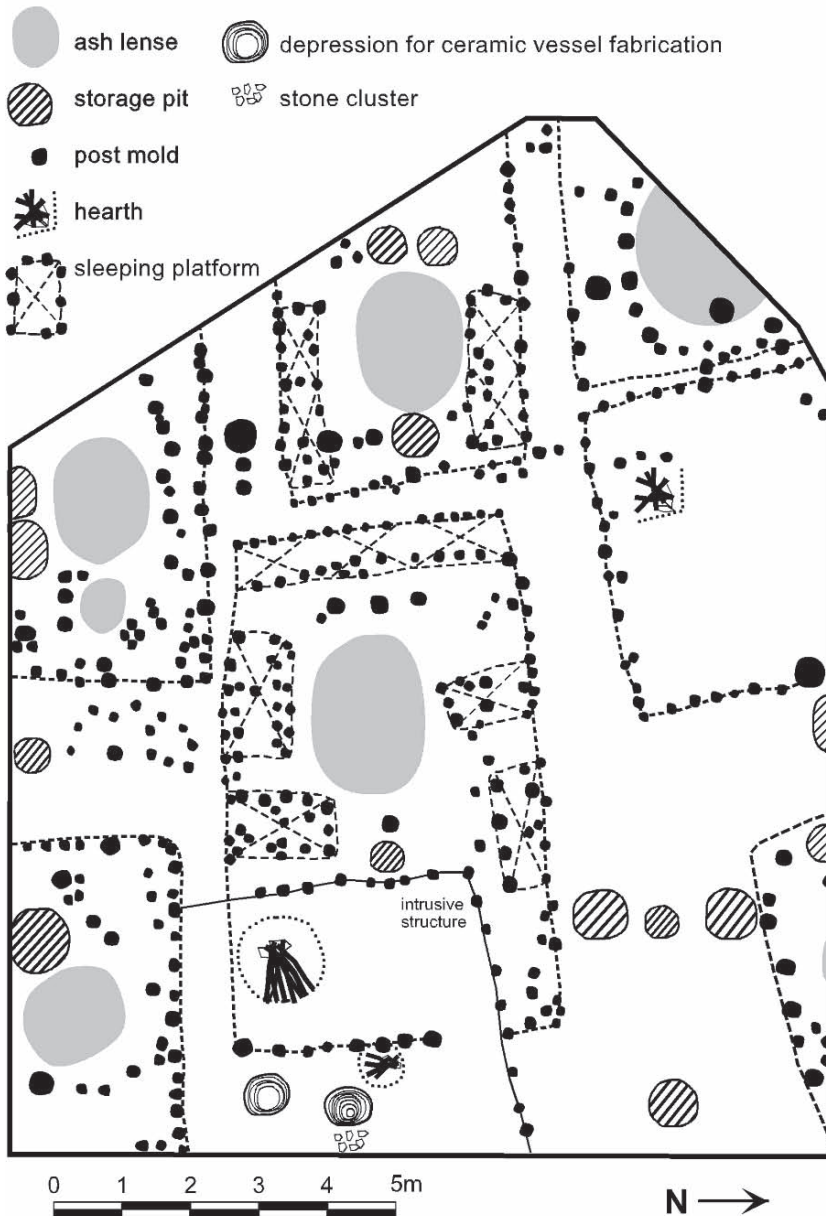


Figure 24.6. Plan map of domestic structures at the Cotocollao site, Pichincha province. (Redrawn from Villalba 1988: fig. 35).

Another important Formative Period site in the northern highlands is La Chimba in Imbabura Province some 55 km northeast of Quito (Figure 24.1). Initially studied in the early 1970s, it was re-excavated in 1989 by J. Stephen Athens (1995). It is a large (12 ha), deeply stratified site yielding a series of 15 radiocarbon dates that span from about 900 BC to AD 200 (calibrated). This places the early part of the sequence squarely within the Late Formative and roughly contemporaneous with the Chorrera culture from the western lowlands. Like Cotocollao, the La Chimba site was fully agricultural, sharing a similar set of cultigens such as maize, potatoes, oca, quinoa, and beans. Cotton was also present (Pearsall 2003). The presence of coca is also suggested based upon iconographic evidence from a ceramic figurine.

With respect to La Chimba ceramics, several archaeologists have noted general similarities in vessel form and decorative technique between La Chimba and Cotocollao (Bruhns 2003:135–136), primarily the carinated bowl with incision, punctation, and notching. Others, however, argue that there is “no obvious stylistic or morphological connection” between the two sites (Lippi 2003:532), and Athens (1995) argues that beyond superficial similarities, the two assemblages are radically different.

Another key aspect of La Chimba that differentiates it from Cotocollao is clear evidence for a robust exchange with groups from both the western and eastern lowlands, as well as other areas of the highlands. According to Athens (1995), this evidence includes marine shell from the Pacific coast (including *Spondylus*, *Strombus*, and mother-of-pearl), Chorrera ceramics from the western lowlands, Cosanga ceramics from the eastern lowlands, and obsidian from the Mullumica source location in the Quito basin. The coca inferred from figurine iconography may also be a product imported from the eastern lowlands.

Sites in the Western Montaña

Two other Formative Period archaeological sites worthy of mention are not highland sites per se, but occur in sub-tropical and tropical forest zones of the western montaña of Pichincha Province to the west of Quito. These are the sites of Nambillo (Lippi 1998) and Tulipe (Isaacson 1987) (Figure 24.1). At Nambillo, Lippi (1998) reports a deeply stratified sequence of culture-bearing paleosols intercalated with a series of volcanic ash deposits from several well-documented Holocene eruptions. His Early Nambillo ceramic phase from the earliest paleosol shows strong similarities with Cotocollao ceramics and to a much lesser extent, with ceramic traits of the Terminal Valdivia, Machalilla, and Chorrera/Engoroy cultures of the coast (Lippi 1998). Extensive reconnaissance survey throughout the western montaña located several other sites bearing Cotocollao-related ceramics, but Lippi (1998; 2003) notes that as his survey moved farther westward into the coastal lowlands, Formative Period potsherds showed much closer similarities to Chorrera ceramics.

The other Formative Period site in the western montaña region is Tulipe, well known for its Late Period complex of stone-lined pools. Stratigraphic excavations at this site conducted by John Isaacson (1987; see also Zeidler and Isaacson 2003) revealed a Late Formative component, termed the Nueva Era phase, completely buried by more than two meters of pyroclastic deposits from the Pululahua eruption at around 400 BC. Analysis of macrobotanical remains from closed feature contexts as well as flotation samples from the general matrix yielded evidence of maize, at least two kinds of roots/tubers, and tree fruits (Pearsall 2003). The ceramic assemblage presents something of an anomaly given the location of the site. As Lippi (2003:532) points out, “though the site is only 18 km north of Nambillo and 35 km northwest of Cotocollao, it appears unrelated to them.” Rather,

the Nueva Era phase ceramics appear to share closer similarities with Chorrera ceramics such as those of the Tabuchila Phase in northern Manabí Province, suggesting that perhaps Tulipe had a special role as node in a Late Formative coastal-highland exchange network through the western montaña. This lack of a close relationship between sites in close proximity to one another is illustrative of a general pattern found throughout the highlands during the Formative Period.

The Central Highlands

Although it is commonly assumed that “no Formative period material is yet known from the little studied central highlands” (Lippi 2003: 529), this is no longer the case. While Formative Period manifestations appear to be sparse in the central highlands, comprised of Cotopaxi, Bolívar, Tungurahua, and Chimborazo provinces, we now have excavated materials from at least three Formative Period archaeological sites and surface collections of Formative pottery from at least two others, all from Chimborazo Province. The three excavated sites are Alausí (Porrás 1977) in the Río Alausí drainage, Loma Pucara, also known as Hierba Buena Ichubamba, in the Río Cebadas Valley (Arellano 1994, 1999), and El Tingo in the Río Chimbo drainage (Arellano 1999) (Figure 24.1).

Porrás’ excavations in the city of Alausí in southern Chimborazo Province were conducted in three separate sites or localities: Las Palmas, Escuela 13 de Noviembre, and the Colegio San Francisco de Sales. While no radiocarbon assays are available for these Formative Period deposits, Porrás (1977) seriated the ceramic assemblage into an earlier phase and a later phase (A and B, respectively). He placed the earlier phase in Middle Formative times because the Phase A ceramics bear striking similarities to late Machalilla decorative techniques from the coast, most especially red-band painting, fine-line incision in double lines or hachure, and zoned punctation. However, it should be pointed out that classic Machalilla vessel forms such as the carinated bowl and the stirrup-spout bottle are not found in the Alausí assemblage, nor is the classic Machalilla decorative technique of notching, especially on vessel carinations, present. Other comparisons are drawn with Early Cerro Narrío, Jubones, and Macas ceramics, the latter from the oriente. No other evidence of coastal contact, such as marine shell, is presented and no explanation is given for the ceramic affinities with Machalilla. Given the lack of firm absolute dating, it would be helpful if new stratigraphic excavations were conducted here in the future to resolve chronological issues as well as shed light on issues of internal site structure, architecture, and subsistence production.

The site of Loma Pucara (CHLP-1) is located in the community of Hierba Buena Ichubamba on the right bank of the Cebadas River approximately 40 km southeast of Riobamba and 32 km northeast of Alausí in the Sierra Oriental. Excavations at this stratified site by Arellano (1994, 1999) revealed a Late Formative occupation beginning by about 670 BC (uncalibrated) and suggest a sedentary population in transition from hunting and foraging to agriculture. No botanical evidence is available to support the presence of agriculture but later levels yielded agricultural implements such as hoes and mortars and pestles possibly used in food preparation. Animal bone recovered in the excavations indicate “selective hunting of woodland animals” (Arellano 1994:118) including white-tailed deer, brocket deer, northern pudu (*Pudu mephitopheles*: a small deer, Artiodactyla family), rabbit, and possibly the mountain or bush dog (*Speothos* sp.). Domesticated animals included the Andean guinea pig (*Cavia* sp.), apparently a principal food source from the earliest Formative levels.

The Loma Pucara ceramic assemblage shows strongest affinities to pottery from the southern highland sites of Cerro Narrío and Pirincay. Perhaps the most salient feature of this affinity is the presence of so-called “eggshell” pottery (see Bruhns [2003: 139–140] for a discussion of this ware): extremely thin-walled vessels with a hard, gray paste commonly found on small-to-medium globular ollas, incurved bowl forms, or small neckless ollas (tecomates). The olla forms, at least, were apparently used for cooking in spite of the level of decoration that they carry. Everted rims are usually highly polished and slipped and bear geometric designs in red-on-white paint or finely incised motifs. Also present in the earliest Loma Pucara ceramic assemblage and continuing into later times are thicker plain wares exhibiting new vessel forms and decorative motifs. Arellano (1994, 1999) also notes the presence of ceramic traits from the other three cardinal directions: Cotacollao in the northern highlands, Chorrera in the western lowlands, and the Upano Valley in the eastern lowlands (see Chapter 15 in this volume). The Cotacollao connection is also corroborated by the abundance of obsidian chips sourced to the Mullumica obsidian flow in the Quito basin. Of considerable interest are the Chorrera-related ceramics: burnished blackware, a bottle fragment with a stirrup-like handle, and grayware with phytomorphic motifs and chain-like stamped motifs. The source of these Chorrera influences is unknown, but a Guayas basin locus is likely. Other tool types include bone awls and drills, a bone flute, horn projectile points, polished stones, as well as stone and ceramic spindle whorls.

The cultural materials recovered at Loma Pucara clearly indicate that the central highlands, far from being a Formative Period backwater, probably served as a major zone of highland cultural contact—a crossroads for trade and exchange to the north and south along the inter-Andean corridor, and east and west to the tropical lowlands of the Ecuadorian oriente and the Guayas basin, respectively. Notably absent from these deposits, however, is evidence of marine shell, suggesting that trade links with the western lowlands did not extend to the coast.

The site of El Tingo (BA-1) is situated right bank of the Chimbo River about 25 km south of Guaranda in the Sierra Occidental. Excavations at this stratified site by Arellano (1999) also yielded cultural material that supports a “crossroads” interpretation, at least in terms of cultural contacts to the north, east, and south. Like the Loma Pucara site, the El Tingo ceramic assemblage shows closest affinities with Late Formative ceramics from sites in the southern highlands such as Cerro Narrío and Pirincay. Contact with the Amazonian lowlands is suggested by the presence of red-banded incised wares, also found at Pirincay. And finally, the presence of obsidian flakes suggests trade with the Quito basin.

The Southern Highlands

The southern highlands, comprised of Cañar, Azuay, and Loja provinces, provide the most extensive suite of sites and archaeological information on the highland Formative (Figure 24.1) and represent a Late Formative manifestation that is “clearly part of a single cultural sphere of ceramics, economy, and, as best as we can tell, settlement pattern” (Bruhns 2003: 139). Similar ceramic assemblages unite these sites, yet some show clear differences in aspects of craft production and specialization as well as in architecture. Their strategic location has long been considered a critical factor in the control of trade routes with the central and northern highlands of Ecuador, with northern Peru to the south, with the coastal Ecuadorian lowlands to the west, and with the Amazon basin to the east. A principal trade

item appears to have been marine shell, especially *Spondylus*, from coastal Ecuador, as well as several varieties of semi-precious stones. Metallurgy appears in the southern highlands at this time and at least one Late Formative site, Putushío, was specialized in gold working (Rehren and Temme 1994; Temme 2000).

Key sites with Late Formative components include Cerro Narrío in the Cañar Valley (Collier and Murra 1943), Challuabamba in the Tomebamba Valley (Gomis 1999; Grieder et al. 2002; Stahl 2005), Pirincay in the Paute Valley (Bruhns 2003; Bruhns et al. 1990), Putushío in southern Azuay Province (Rehren and Temme 1994; Temme 1999), and a series of sites in the Catamayo area of Loja Province (Guffroy (1987, 1989, 2004). However, excavations by Grieder and associates (Grieder et al. 2002) at Challuabamba have revealed a four-phase ceramic sequence extending back into the Early Formative Period, more or less coeval with Phase 7 of the Valdivia sequence on the coast. Grieder's ceramic sequence, based on 5 radiocarbon determinations, is as follows: Period I: ca. 2000-1800 BC; Period II: ca. 1800-1600 BC; Period III: ca. 1600-1400 BC; and Period 4: ca. 1400-1200 BC. Likewise, Guffroy has identified a series of seven Formative Period sites (Guffroy 1987, 1989, 2004) extending back into the Early Formative Period. His four-phase ceramic sequence is as follows: Catamayo A: 2000-1400 BC; Catamayo B: 1200-900 BC; Catamayo C: 900-500 BC; and Catamayo D: 500-300 BC. Thus Challuabamba and the Catamayo sites stand apart from the other southern highland sites in that Early, Middle, and Late Formative occupations have been identified.

The Challuabamba site covers an area of approximately 70 ha (Grieder et al. 2002) and thus is atypical of Formative Period sites elsewhere in the highlands. Here, Grieder and associates excavated five areas in stratified deposits measuring up to 2 m in depth, yielding a wealth of archaeological information on architecture, subsistence, mortuary behavior, and pottery production. They note the presence of three distinct ceramic wares that developed in tandem throughout most of their four-phase sequence. These are the Burnished Black Ware tradition, the Red-and-Black Ware tradition, and the Red-on-Cream Ware tradition. The first and last of these are shown to expand in diversity from Period I through Period IV, while the Red-and-Black ware declines in popularity from Period I to Period III, disappearing in Period IV. The Red-and-Black and Red-on-Cream share a set of simple jar and bowl forms with typically thin walls (ca. 2 mm) and many conform to the "eggshell" ceramics commonly found at Late Formative sites in the southern highlands. As Bruhns (2000:139) notes, "eggshell ceramics are definitely the hallmark of the earliest known pottery-making cultures of the southern highlands". Grieder et al. (2002) argue that the Burnished Black Wares were conceptually distinct from the other two wares in having thicker walls, heavily reduced firing, and high burnishing. In addition the Burnished Black Wares exhibit a different suite of decorative designs than is found on the Red-on-Cream Wares, as well as a unique bowl form: the flat-bottomed, vertical walled bowl. Bottle forms with a single-loop handle occur in both the Black Burnished and the Red-on-Cream traditions, and appear for the first time in Period II. The authors attribute the Black Burnished Ware to an emerging elite that controlled the pyrotechnology of reduced-atmosphere firing and the pattern-burnishing decorative technique.

Architectural evidence from Challuabamba indicates rectangular and oval structures with wooden posts set in stone-lined wall trenches and wattle-and-daub walls. In later time periods, stone revetments suggest platforms on which wooden structures with wattle-and-daub walls were erected. No clear evidence for public architecture was found, although the authors note that elaborate burial offerings in a grave beneath the floor of one of these structures may indicate an individual of high rank (Grieder et al. 2002:171).

Challuabamba's status as an early trade center with the western Ecuadorian lowlands and coast is indicated by the importation of exotic taxa such as marine shell and marine catfish, crocodile, agouti, paca, and peccary. Stahl (2005) suggests that the selective provisioning of cervid meat at Challuabamba, especially that of white-tailed deer, may represent "easily transportable cervid skeletal portions, bearing large quantities of meat and marrow" (Stahl 2005: 324), imported into the site from the western lowlands.

The Late Formative sites in the southern highlands, such as Cerro Narrío, Pirincay, and Putushío, are all located in fairly close proximity to Challuabamba, and thus exhibit a certain amount of similarity with its ceramic assemblage. The classic "eggshell" ceramics, in bowl and olla forms, are also associated with a variety of other thicker-walled forms, particularly plates and bowls (Bruhns 2003; see also Bruhns et al. 1990: fig. 5). Small-to-medium sized ollas lacking any decoration are also found. Many of these vessels are derived from the Red-on-Cream tradition at Challuabamba, while a minor component of these Late Formative assemblages is made up of "reduced blackware bowls with line luster decoration" (Bruhns 2003:141; see also Bruhns et al. 1990: fig. 5) derived from the Burnished Black Ware tradition at Challuabamba.

Evidence for Late Formative Period architecture in the southern highlands consists of postholes usually arranged in a rectangular shape. At Cerro Narrío, Collier and Murra (1943) encountered such structures in later phases of that site. These were typically of small size measuring from 4–6 m long by 2–2.5 m wide. Assuming these were domestic dwellings, they are likely to have housed a nuclear family. Bruhns found similar posthole patterns at Pirincay, where the postholes are excavated into packed clay or calcium carbonate floors (Bruhns 2003). Possible evidence of public architecture appears late in the Pirincay sequence where a large paved floor was found to contain several "party pits" and feasting debris interpreted as public ritual involving llama sacrifice, eating, and drinking activity (Bruhns et al. 1990; Bruhns 2003).

Subsistence in the Late Formative southern highlands followed patterns generally similar to those in the northern highlands, although paleobotanical data is much less abundant. Maize and beans have been documented at Pirincay (Bruhns 2003), and a much wider spectrum of cultigens was no doubt present there and at related sites. Llamas and guinea pigs are found at most sites, and other faunal remains suggest broad spectrum hunting patterns. White-tailed deer seems to have been the preferred meat source at Challuabamba (Stahl 2005), as mentioned previously, although even here, a broad range of taxa are present.

Trade and craft specialization are evident at the Late Formative sites of Pirincay and Putushío. At the former Bruhns (Bruhns 2000; Bruhns et al. 1990) uncovered evidence of a rock crystal bead-making industry, while imported goods included *Spondylus* and other marine shell, as well as a variety of semi-precious stones including "jadeite, colored cherts, a pink tuff and red ochre, and (rare) obsidian from the region of Quito far to the north" (Bruhns et al. 1990: 231). A small number of metal objects have also been found in the later phases of Pirincay, and include a gilded copper nose ornament, a copper or bronze bar, and a gold crucible drop. At Putushío in southern Azuay Province, Temme (Rehren and Temme 1994; Temme 1999) has documented gold-smelting activity and the production of mold-made gold objects in Late Formative context.

As mentioned previously, the Catamayo area in Loja Province constitutes a separate locus of Formative Period occupation in the southern highlands. The four-phase ceramic sequence developed by Guffroy (1987, 1989, 2004) shows stylistic influences from coastal Ecuador, from Formative Period occupations of Cañar and Azuay provinces to the north, and from the northern Peruvian coast and highlands. Ceramic vessel forms are rather

simple and include large globular ollas with straight, bell-shaped, and everted necks as the dominant form, along with lesser quantities of bowls. The latter are typically flat-bottomed with out-slanted or vertical walls, although incurved bowls occur later in the sequence. Decorative techniques during the early part of the sequence include broad-line incision and zoned punctate motifs and red slipping on rims that are reminiscent of Valdivia ceramics. Assuming a 2000 BC start date for Catamayo A, this early part of the sequence would have overlapped with Late and Terminal Valdivia, while Catamayo B would have overlapped with Machalilla. Coastal contacts during Catamayo B are evidenced by the presence of marine shell including *Spondylus*. By Catamayo D (ca. 500-300 BC), red-and-black polychrome painting and simple bottle forms appear, suggesting Cupisnique/Chavín influences. Similar influences appear at Challuabamba at about this time (Gomis 1999; Guffroy 2004).

Of particular interest is evidence for domestic architecture at the Catamayo site of La Vega. Two structures have been excavated, both dating to Catamayo B. The first of these, Structure 1, is semi-circular or semi-oval in shape measuring 8 m long and about 5 m wide. A low wall of stones and clay mortar measuring 20 to 40 cm wide and 40–50 cm in height defines the border. Presumably this provided a foundation on which the roof structure of pole-and-thatch was constructed. The open end of the wall structure was thus open to the air, giving the structure the appearance of a large lean-to with massive centerpost. Structure 2, in contrast, was partially destroyed and difficult to understand, but the investigators interpret it as a quadrangular building defined by an irregular pattern of stone footings. The latter seems more reminiscent of the architectural patterns documented at Challuabamba by Grieder and associates (Grieder et al. 2002), while the former is unlike any domestic architecture documented for the Formative Period, either on the coast or in the highlands.

FORMATIVE MANIFESTATIONS IN THE EASTERN LOWLANDS

Although poorly studied, the eastern lowlands of Ecuador have long been considered by many archaeologists to be a locus of Formative Period occupation, largely due to the work of Pedro Porras on the Huasaga River in Morona-Santiago Province and his chronological placement of the Pastaza Phase in the Formative Period based on a series of questionable radiocarbon determinations. Subsequent research by Athens (1990) at the site of Pumpuentsa on the Macuma River, not far from the Huasaga site, determined that the fine-line incised-and-punctate pottery characteristic of the Pastaza Phase could actually date to the seventh century AD.

Other candidates for Formative Period status in the eastern lowlands are the Yasuní Phase on the Napo River in Napo Province, the Pre-Upano Phase at the Sangay (Huápula) site in the Upano Valley, and the Yaunchu site, also in the Upano Valley, and Cueva de los Tayos, all located in Morona-Santiago province (see Chapter 15 in this volume). However, after careful review of ceramic assemblages and radiocarbon dates, both Bruhns (2003) and Rostoker (2003) have concluded that none of these phases should be assigned to the Formative Period. More recent archaeological research in Morona-Santiago Province, reported by Ledergerber (2006; personal communication, 20 January 2007), documents Formative Period occupations at the El Remanso site (Cantón Gualaquiza) in the 2630-2470 cal BC time range, and at the Misión Santiago site (Cantón Tiwintza) in the 2310-2230 cal BC time range.

Other data from Morona-Santiago Province suggesting an early human occupation come from Lake Ayauchi in the form of lake cores revealing pollen grains and phytoliths

of maize (*Zea mays*) dating as early as 3300 BC (Bush et al. 1989; Piperno 1990; Pearsall 2003). Paleobotanical data also suggest “increased disturbance indicators and abundant carbon particles, indicating that swiddening was ongoing in the lake watershed at this time” (Pearsall 2003: 233). As intriguing as this find is in terms of documenting the early introduction of maize into the Ecuadorian Amazon, there is no corroborating archaeological evidence to indicate the nature of this cultural occupation.

The best and also the newest archaeological evidence for a well-developed Formative Period occupation in the Ecuadorian oriente comes from Zamora-Chinchipe Province at the site of Santa Ana-La Florida (Figure 24.1). Located on the Valladolid River (Mayo-Chinchipe), the site is situated on an alluvial terrace where previous looting had revealed abundant archaeological remains, including stone structures. Recent excavations conducted by Francisco Valdez and associates (Valdez et al. 2005; see Chapter 43 in this volume) have revealed three different levels, two of which represent two distinct Formative components spanning from about 3000 to 200 BC (based upon a suite of 11 radiocarbon determinations), thus encompassing almost the entire Ecuadorian Formative Period as defined on the coast.

In the uppermost component (ca. 35 cm below surface), wall remnants of a rectangular structure some 20 m long were found and are associated with the Corrugated Horizon from the eighth to the fifteenth centuries. Below this, and extending down to a depth of ca. 190 cm, the excavators found a rather remarkable architectural feature in the form of an extensive set of curvilinear walls ending in a spiral pattern apparently marking the center of the site. The core of this feature contained a stone-lined hearth some 80 cm in diameter. Here they encountered a rich assemblage of cultural materials that apparently formed a ceremonial offering. These objects included a green stone mask, a polished stone bowl, a green stone anthropomorphic pendant, and several pieces of turquoise carved into zoomorphic shapes, most likely avian and serpent motifs. Further excavation in the vicinity of this structure down to a depth of 230 cm revealed a second feature not far from the hearth. This was a conical pit with stone-lined walls and three internal cavities containing human remains. The pit yielded a bewildering array of funerary offerings, including a tall stirrup-spout bottle with human faces on either side (Figure 24.7), zoomorphic turquoise ornaments, malachite ornaments, as well as small stone bowls or mortars carved in anthropomorphic and zoomorphic motifs. Figure 24.8 shows one of these vessels in carved red stone (porphyry?) clearly depicting avian imagery. The presence of considerable amounts of marine shell in the burial cavities documents trade relations with the Ecuadorian coast.

Perhaps most surprising, however, is the dating of this pit feature. A radiocarbon determination associated with the funerary offerings in the conical pit yielded a result of 3700 ± 40 RCYBP (Beta-197176), which is calibrated in calendar years to 2270–2260 BC. This would place it firmly in Middle Valdivia times, or Valdivia Phase 4 to be more precise. Since neither the stirrup-spout bottle nor the sophisticated lapidary industry are found anywhere on the coast or in the highlands at this time period, we are clearly dealing with a precocious development of social complexity in an area of Ecuador (and northern Peru) that has been traditionally ignored, or at best, underexplored. Moreover, the lavish and diverse nature of the grave goods associated with the human burials at Santa Ana-La Florida far exceeds that of any grave offerings at Real Alto or any other Valdivia sites dating to Middle Valdivia times. They imply a developed system of social ranking, cosmological symbolism, and craft production that is unprecedented for this time period, not to mention the great geographical expanse of trade networks involved in the acquisition of some of these goods and raw materials.



Figure 24.7. Early Formative stirrup-spout bottle from the Santa Ana-La Florida site, Zamora-Chinchipe province. Dimensions: 29.3 cm in height x 14.5 cm in diameter. (photograph courtesy of Francisco Valdez)

If the associated radiocarbon determinations are to be believed, then these finds will necessarily upturn much of our current thinking about the early genesis of Formative Period cultures in Ecuador. They provide strong evidence for a far-flung Formative Period “interaction sphere” in esoteric knowledge and cosmological symbolism—and their associated material culture items—that effectively linked the coast, highlands, and oriente of Ecuador as well as the northern highlands and upper Amazon basin of Peru (Lathrap 1970, 1973, 1974). One item apparently participating in the sphere was the ceremonial zoomorphic mortar of polished stone, often decorated with feline or avian imagery, and probably used in the processing of hallucinogenic snuff (Zeidler 1988). The site of Huayurco in the lower Chinchipe river valley has long been known as “an early manufacturing center of elaborately decorated stone vessels and zoomorphic mortars...[that] no doubt played a pivotal role in the dissemination of ‘morteros ceremoniales’ and the ‘cult of the feline’” (Zeidler 1988: 273). It dates to around 1500 BC or almost a thousand years after the burial feature



Figure 24.8. Early Formative stone mortar with carved avian design from the Santa Ana-La Florida site, Zamora-Chinchipe province. Dimensions: 12 cm long x 8 cm wide x 3.2 cm thick; orifice diameter is 6 cm; interior depth is 2 cm. (photograph courtesy of Francisco Valdez)

at Santa Ana-La Florida. The Chinchipe river valley of southeastern Ecuador and northern Peru, then, would seem to be a “hot spot” in the emergence of early social complexity in a tropical forest context, and may ultimately prove to be an important source area in the development of Valdivia culture, as originally postulated by Lathrap (1970).

CONCLUSION

In light of the recent finds from the Santa Ana-La Florida site in Zamora-Chinchipe Province, the Remanso site in Morona-Santiago Province, as well as the recent discoveries of Terminal Valdivia and Machalilla occupations in far northern Manabí and Esmeraldas provinces, it is clear that our current understanding of the Ecuadorian Formative Period is in need of rethinking. With respect to the latter, it would now appear that both the Terminal Valdivia and Machalilla phases of far northern Manabí may have been far more complex than previously thought, both in terms of sociopolitical development and in terms of ideology and religious beliefs. Of particular interest with respect to Terminal Valdivia is the highly developed lapidary industry of polished stone artifacts. We now know that this included far more than the polished stone bowls and zoomorphic mortars documented at the San Isidro site (Zeidler 1988), but also included elaborate engraved and excised

stone plaques with a complex array of enigmatic design motifs and symbolism, as well as deeply excised or grooved bas-relief effigies of avian (probably owl) imagery. What we lack, however, is contextual information on these artifacts from scientifically controlled archaeological excavations.

Perhaps the most astonishing recent finds relating to the Ecuadorian Formative are those of Francisco Valdez and his associates (Valdez et al. 2005) at the Santa Ana-La Florida site in Zamora-Chinchipe Province. These finds will require a complete rethinking of the Ecuadorian Formative Period as well as the relationships between Ecuador and Peru during this early time period. If anything, these finds urge us to shed our myopic concentration on the well-known coastal Formative cultures as standards for the evaluation and interpretation of other Formative Period societies. Hopefully, this new perspective will foster more intensive and systematic archaeological research in the Ecuadorian oriente, especially in Zamora-Chinchipe province, and adjacent lowland areas of Peru.

REFERENCES

- Alvarez, Aurelio, Jorge G. Marcos, and Giorgio Spinolo, 1995, The Early Formative pottery from the Santa Elena Peninsula in southwest Ecuador. *Congrès Estudis sobre ceràmica antiga (Barcelona, Espanya, 18–29 novembre 1993)*, *Simposi sobre ceràmica antiga* No. 2, pp. 99–107. Generalitat de Catalunya, Barcelona.
- Arellano López, A. Jorge, 1994, Loma Pucara, a Formative site in Cebadas Valley, Ecuador. *National Geographic Research & Exploration* 10 (1): 118–120.
- , 1999, Primeras evidencias del Formativo Tardío en la sierra central del Ecuador. In *Formativo Sudamericano: Una Revaluación*, edited by Paulina Ledergerber-Crespo, pp. 160–175. Abya-Yala, Quito.
- Athens, J. Stephen, 1990, The site of Pumpuenta and the Pastaza Phase in southeastern lowland Ecuador. *Ñawpa Pacha* 24 (1986): 111–124.
- , 1995, Relaciones interregionales prehistóricas en el norte de los Andes: evidencia del sitio La Chimba en el Ecuador septentrional. In *Perspectivas Regionales en la Arqueología del Suroccidente de Colombia y Norte del Ecuador*, edited by Cristóbal Gnecco, pp. 3–29. Editorial Universidad del Cauca, Popayán, Colombia.
- Beckwith, Laurie A., 1996, Late Formative Period Ceramics from Southwestern Ecuador. Ph.D. dissertation. Department of Archaeology, University of Calgary, Calgary, Canada.
- Bruhns, Karen Olsen, 2003, Social and cultural development in the Ecuadorian highlands and eastern lowlands during the Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 125–174. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , James H. Burton, and George R. Miller, 1990, Excavations at Pirincay in the Paute Valley of southern Ecuador. *Antiquity* 64: 221–233.
- Burger, Richard L., 2003, Conclusions: cultures of the Ecuadorian Formative in their Andean contexts. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 465–486. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Bush, Mark B., Dolores R. Piperno, and Paul A. Colinvaux, 1989, A 6,000-year history of Amazonian maize cultivation. *Nature* 340: 303–305.
- Bushnell, Geoffrey H. S., 1951, *The Archaeology of the Santa Elena Peninsula in South-west Ecuador*. Cambridge University Press, Cambridge.
- Chandler-Ezell, Karol, Deborah M. Pearsall, and James A. Zeidler, 2006, Root and tuber phytoliths and starch grains document manioc (*Manihot esculenta*), arrowroot (*Maranta arundinacea*), and Ilerén (*Calathea* sp.) at the Real Alto site, Ecuador. *Economic Botany* 60 (2):103–120.
- Clark, John E., and Michelle Knoll, 2005, The American Formative revisited. In *Gulf Coast Archaeology: The Southeastern United States and Mexico*, edited by N. M. White, pp. 281–303. University Press of Florida, Gainesville.
- , Jon L. Gibson, and James A. Zeidler, n.d., First towns in the Americas: searching for agriculture and other enabling conditions. In *The Archaeology of Subsistence and Social Change in Intermediate Scale Societies*, edited by William Prentiss and Ian Kuijt. (Volume under review).

- Collier, Donald and John V. Murra, 1943, *Survey and Excavations in Southern Ecuador*. Field Museum of Natural History, Anthropological Series, No. 35. Chicago.
- Cruz, Felipe, and Olaf Holm, 1982, Un informe muy preliminar: San Lorenzo del Mate, Provincia del Guayas. Unpublished manuscript. Museo Antropológico del Banco Central del Ecuador, Guayaquil, Ecuador.
- Cummins, Tom, 2003, Nature as culture's representation: a change of focus in Late Formative iconography. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 423–464. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Damp, Jonathan E., 1984, Architecture of the early Valdivia village. *American Antiquity* 49: 573–585.
- , 1988, *La Primera Ocupación Valdivia de Real Alto: Patrones Económicos, Arquitectónicos e Ideológicos*. Biblioteca Ecuatoriana de Arqueología, 3. Escuela Superior Politécnica del Litoral, Guayaquil/Corporación Editora Nacional, Quito.
- Engwall, Evan, 1992, Archaeological Investigations of Chorrera Culture: Tabuchila Phase Ceramics from Northern Manabí, Ecuador. Paper presented at the 57th Annual Meeting of the Society for American Archaeology, Pittsburgh, Pennsylvania.
- , 1995, The Tabuchila Phase: Late Formative Chorrera Culture in the Jama River Region, Manabí, Ecuador. Paper presented at the 60th Annual Meeting of the Society for American Archaeology, Minneapolis, Minnesota.
- Estrada, Emilio, 1956, *Valdivia, un Sitio Arqueológico Formativo en la Provincia del Guayas, Ecuador*. Museo Arqueológico Victor Emilio Estrada, Publicación No. 1, Guayaquil.
- , 1958, *Las Culturas Pre-Clásicas, Formativas o Arcaicas del Ecuador*. Museo Arqueológico Victor Emilio Estrada, Publicación No. 5, Guayaquil.
- Evans, Clifford and Betty J. Meggers, 1954, Informe preliminar sobre las investigaciones arqueológicas realizadas en la cuenca del Guayas, Ecuador. *Cuadernos de Historia y Arqueología* 4 (12): 307–336.
- and Betty J. Meggers, 1957, Formative Period cultures of the Guayas basin, coastal Ecuador. *American Antiquity* 22: 235–247.
- and Betty J. Meggers, 1982, Técnicas decorativas diagnósticas y variantes regionales Chorrera, un análisis preliminar. In *Primer Simposio de Correlaciones Antropológicas Andino-Mesoamericano*, edited by Jorge G. Marcos and Presley Norton, pp. 121–133. Escuela Superior Politécnica del Litoral (ESPOL), Guayaquil.
- Ford, James A., 1969, *A Comparison of Formative Cultures in the Americas: Diffusion or the Psychic Unity of Mankind?* Smithsonian Contributions to Anthropology, No. 11. Washington, D.C.
- Gomis, Dominique, 1999, La cerámica Formativa Tardía de la sierra austral del Ecuador. In *Formativo Sudamericano: Una Revaluación*, edited by Paulina Ledergerber-Crespo, pp. 139–153. Abya-Yala, Quito.
- Grieder, Terence, James D. Farmer, Antonio Carrillo, and Bradford M. Jones, 2002, Art and prestige among noble houses of the equatorial Andes. In *Andean Archaeology II: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 157–177. Kluwer Academic/Plenum Publishers, New York.
- Guffroy, Jean, 1987, La Periode Formative. In *Loja Préhispanique, Recherches Archéologiques dans les Andes Méridionales de l'Equateur*, edited by Jean Guffroy, pp. 61–139. Editions Recherches sur les Civilisations, Paris.
- , 1989, Las tradiciones culturales de Catamayo en el ámbito Formativo Andino. In *Antropología del Ecuador: Memorias del Primer Simposio Europeo sobre Antropología del Ecuador*, edited by Segundo Moreno Yáñez, pp. 113–133. Abya-Yala, Quito.
- , 2004, *Catamayo Precolombino: Investigaciones Arqueológicas en la Provincia de Loja (Ecuador)*. IRD Éditions, Paris.
- Hill, Betsy D., 1972–1974, A new chronology of the Valdivia ceramic complex from the coastal zone of Guayas province, Ecuador. *Nawpa Pacha* 10–12: 1–32.
- Hirtz, Alexander, 2001, *Valdivia: Cultura Madre de América*. Fundación Wilson Hallo, Ediciones del Sol, Quito, Ecuador.
- Hoopes, John W., 1994, Ford revisited: a critical review of the chronology and relationships of the earliest ceramic complexes in the New World, 6000–1500 B.C. *Journal of World Prehistory* 8 (1): 1–49.
- Idrovo Urigüen, Jaime, 1992, *El Formativo Ecuatoriano*. Museo del Banco Central del Ecuador, Cuenca.
- , 1999, El Formativo en la sierra ecuatoriana. In *Formativo Sudamericano: Una Revaluación*, edited by Paulina Ledergerber-Crespo, pp. 114–123. Abya-Yala, Quito.
- Isaacson, John S., 1987, Volcanic Activity and Human Occupation of the Northern Andes: The Application of Tephrostratigraphic Techniques to the Problem of Human Settlement in the Western Montaña during the

- Ecuadorian Formative. Ph.D. dissertation. Department of Anthropology, University of Illinois at Urbana-Champaign.
- Klepinger, Linda, 1979, Paleodemography of the Valdivia III phase at Real Alto, Ecuador. *American Antiquity* 44: 305–309.
- Kobayashi, Tatsuo, 2004, *Jomon Reflections: Forager Life and Culture in the Prehistoric Japanese Archipelago*. Oxbow Books, Oxford.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, New York.
- , 1973, The antiquity and importance of long-distance trade relationships in the moist tropics of pre-Columbian South America. *World Archaeology* 5 (2): 170–186.
- , 1974, The moist tropics, the arid lands, and the appearance of great art styles in the New World. In *Art and Environment in Native America*, edited by M. E. King and I. R. Taylor, Jr., pp. 115–158. Special Publications, No. 7. The Museum, Texas Tech University, Lubbock.
- , 1977, Our Father the Cayman, Our Mother the Gourd: Spinden revisited, or a unitary model for the emergence of agriculture in the New World. In *Origins of Agriculture*, edited by Charles A. Reed, pp. 713–751. Mouton, The Hague.
- , 1985, Jaws: the control of power in the early nuclear American ceremonial center. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 241–267. Dumbarton Oaks Research Collection and Library, Washington, D.C.
- , 1987, The introduction of maize in prehistoric eastern North America: the view from Amazonia and the Santa Elena Peninsula. In *Emergent Horticultural Economies of the Eastern Woodlands*, edited by William F. Keegan, pp. 345–371. Southern Illinois University at Carbondale, Center for Archaeological Investigations, Occasional Paper, No. 7. Carbondale.
- , Donald Collier, and Helen Chandra, 1975, *Ancient Ecuador: Culture, Clay, and Creativity, 3000–300 BC*. Field Museum of Natural History, Chicago.
- , Jorge G. Marcos, and James A. Zeidler, 1977, Real Alto: an ancient ceremonial center. *Archaeology* 30: 2–13.
- Ledergerber, Paulina, 2006, Ecuador Amazónico-Andino: Apropiación de paisajes y relaciones culturales. In *Pueblos y Paisajes Antiguos de la Selva Amazónica*, edited by G. Morcote, S. Mora, y C. Franky, pp. 131–155. Universidad Nacional de Colombia, Bogotá.
- (ed.), 1999, *Formativo Sudamericano: Una Revaluación*, Abya-Yala, Quito.
- Lippi, Ronald D., 1983, La Ponga and the Machalilla Phase of Coastal Ecuador. Ph.D. dissertation. Department of Anthropology, University of Wisconsin, Madison.
- , 1998, *Una Exploración Arqueológica del Pichincha Occidental, Ecuador*. Museo Jacinto Jijón y Caamaño, Pontificia Universidad Católica del Ecuador, Quito.
- , 2003, Appendix B: Formative Period chronology for the northern and central highlands of Ecuador. *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 529–537. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Lunniss, Richard M., 2001, Archaeology at Salango, Ecuador: An Engoroy Ceremonial Site on the South Coast of Manabí. Ph.D. Dissertation, Institute of Archaeology, University of London.
- Marcos, Jorge G., 1988, *Real Alto: La Historia de Un Centro Ceremonial*. Biblioteca Ecuatoriana de Arqueología 4 y 5. Escuela Superior Politécnica del Litoral, Guayaquil/Corporación Editora Nacional, Quito.
- , 1989, Informe arqueológico. In *Proyecto San Lorenzo del Mate*, edited by Jorge G. Marcos and Silvia Alvarez, pp. 1–20. Fundación Pedro Vicente Maldonado, Guayaquil.
- , 2003, A reassessment of the Ecuadorian Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 7–32. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 2005, *Los Pueblos Navegantes del Ecuador Prehispánico*. Ediciones Abya-Yala, Quito.
- , Aurelio Álvarez Pérez, and Giulio Bigazzi, 1998, El tráfico a distancia temprano entre la hoya de Quito y la Península de Santa Elena: Las evidencias de Real Alto. In *Intercambio y Comercio entre Costa, Andes, y Selva: Arqueología y Ethnohistoria de Suramérica*, edited by F. Cárdenas-Arroyo y T. L. Bray, pp. 163–185. Universidad de los Andes, Departamento de Antropología, Bogotá.
- Meggers, Betty J., 1987, El origen transpacífico de la cerámica Valdivia: una revaluación. *Boletín del Museo Chileno de Arte Precolombino* 2: 9–31.
- , 1992, Jomon-Valdivia similarities: Convergence or contact? *New England Antiquities Research Association (NEARA) Journal* 27 (Summer-Fall): 23–32.
- , 1997, La cerámica temprana en América del Sur: Invención o difusión? *Revista de Arqueología Americana* 13: 7–40.

- _____, 2005, The subversive significance of transpacific contact. *New England Antiquities Research Association (NEARA) Journal* 39 (2): 22–30.
- _____, Clifford Evans, and Emilio Estrada, 1965, *Early Formative Period of Coastal Ecuador: The Valdivia and Machalilla Phases*. Smithsonian Contributions to Anthropology, No. 1. Washington, D.C.
- Pearsall, Deborah M., 1988a, *La Producción de Alimentos en Real Alto*. Biblioteca Ecuatoriana de Arqueología, No. 2. Escuela Superior Politécnica del Litoral, Guayaquil/Corporación Editora Nacional, Quito.
- _____, 1988b, An overview of Formative period subsistence in Ecuador: paleoethnobotanical data and perspectives. *Diet and Subsistence: Current Archaeological Perspectives*, edited by Brenda V. Kennedy and Genevieve M. LeMoine, pp. 149–164. University of Calgary, Canada.
- _____, 1994a, Macrobotanical analysis. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 149–159. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh and Ediciones Libri Mundi, Quito.
- _____, 1994b, Phytolith analysis. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 161–174. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh and Ediciones Libri Mundi, Quito.
- _____, 2003, Plant food resources of the Ecuadorian Formative: an overview and comparison to the Central Andes. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 213–257. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, 2004, *Plants and People in Ancient Ecuador: The Ethnobotany of the Jama River Valley*. Wadsworth/Thomson Learning, Belmont, CA.
- _____, and Peter W. Stahl, 1996, Multidisciplinary perspectives on environmental and subsistence change in the Jama River valley, Manabí, Ecuador. Paper presented in the Fryxell Symposium at the 61st Annual Meeting of the Society for American Archaeology, New Orleans.
- _____, and James A. Zeidler, 1994, Regional environment, cultural chronology, and prehistoric subsistence in northern Manabí. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 200–215. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh and Ediciones Libri Mundi, Quito.
- _____, Karol Chandler-Ezell, and James A. Zeidler, 2004, Maize in ancient Ecuador: results of residue analysis of stone tools from the Real Alto site. *Journal of Archaeological Science* 31(4):423–442.
- Perry, L., R. Dickau, S. Zarrillo, I. Holst, D. M. Pearsall, D. Piperno, M. J. Berman, R. G. Cooke, K. Rademaker, A. J. Ranere, J. S. Raymond, D. H. Sandweiss, F. Scaramelli, K. Tarble, and J. A. Zeidler, 2007, Starch fossils and the domestication and dispersal of chili peppers (*Capsicum* spp. L.) in the Americas. *Science* 16 February 2007, 315 (5814): 986–988.
- Piperno, Dolores R., 1990, Aboriginal agriculture and land usage in the Amazon Basin, Ecuador. *Journal of Archaeological Science* 17: 665–677.
- _____, and Deborah M. Pearsall, 1998, *The Origins of Agriculture in the Lowland Neotropics*. Academic Press, San Diego.
- Porras, Pedro I., 1973, *El Encanto, Isla de la Puná, Guayas: La Fase Valdivia en un Conchero Anular*. Ediciones Huancavilca 5, Serie La Puná 1. Museo Francisco Piana. Guayaquil.
- _____, 1977, Fase Alausí. In *Estudios Arqueológicos: Ecuador, Antillas, y Tierras Bajas de Sud America*, edited by P. I. Porras, pp. 89–159. Pontificia Universidad Católica del Ecuador, Centro de Publicaciones, Quito.
- _____, 1982 *Arqueología de Quito I: Fase Cotocollao*. Pontificia Universidad Católica del Ecuador, Centro de Investigaciones Arqueológicas, Quito.
- _____, 1983, *Arqueología Palenque (Los Ríos) y La Ponga (Guayas)*. Pontificia Universidad Católica del Ecuador, Centro de Investigaciones Arqueológicas, Quito.
- Raymond, J. Scott, 2003a, Social formations in the western lowlands of Ecuador during the Early Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 33–62. Dumbarton Oaks Research Library and Collection, Washington, D. C.
- _____, 2003b, Appendix D: Formative Period chronology for the southern highlands of Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 547–551. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, and Richard L. Burger (eds.), 2003a, *Archaeology of Formative Ecuador*. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- _____ and Richard L. Burger, 2003b, Introduction. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 1–5. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, Augusto Oyuela-Caycedo, and Patrick Carmichael, 1994, Una comparación de las tecnologías de la cerámica temprana de Ecuador y Colombia. In *Tecnología y Organización de la Producción de Cerámica Prehispánica en los Andes*, edited by Izumi Shimada, pp. 33–52. Fondo Editorial, Pontificia Universidad Católica del Perú, Lima.
- Rehren, Thilo and Matilde Temme, 1994, Pre-Columbian gold processing at Putushío, South Ecuador: the archaeometallurgical evidence. In *Archaeometry of Pre-Columbian Sites and Artifacts*, edited by David A. Scott and Pieter Meyers, pp. 267–284. Getty Conservation Institute, Malibu, CA.
- Roosevelt, Anna C., 1995, Early pottery in the Amazon: twenty years of scholarly obscurity. In *The Emergence of Pottery*, edited by W. K. Barnett and J. W. Hoopes, pp. 115–131. Smithsonian Institution Press, Washington, D.C.
- _____, R. A. Housley, M. Imazio da Silveira, S. Maranca, and R. Johnson, 1991, Eighth millenium pottery from a prehistoric shell midden in the Brazilian Amazon. *Science* 253: 1621–1624.
- Rostoker, Arthur, 2003, Appendix C: Formative Period chronology for eastern Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 539–545. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Schwarz, Frederick A. and J. Scott Raymond, 1996, Formative settlement patterns in the Valdivia Valley, southwest coastal Ecuador. *Journal of Field Archaeology* 23 (2): 205–224.
- Spinden, Herbert, 1917, The origin and distribution of agriculture in America. *Proceedings of the XIX International Congress of Americanists*, pp. 269–276. Washington, D.C.
- _____, 1928, *Ancient Civilizations of Mexico and Central America*. American Museum of Natural History Handbook Series, No. 3. New York.
- Stahl, Peter W., 1994, Qualitative assessment of archaeofaunal taxa from the Jama Valley. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 185–199. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh and Ediciones Libri Mundi, Quito.
- _____, 2003, The zooarchaeological record from Formative Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 175–191. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, 2005, Selective faunal provisioning in the southern highlands of Formative Ecuador. *Latin American Antiquity* 16 (3): 313–328.
- Staller, John E., 1991, Valdivia Tardío en la provincia del Oro. *Revista de la Universidad de Guayaquil*.
- _____, 2001, Reassessing the developmental and chronological relationships of the Formative of coastal Ecuador. *Journal of World Prehistory* 15 (2): 193–256.
- Stothert, Karen E., 1985, The preceramic Las Vegas culture of coastal Ecuador. *American Antiquity* 50 (3): 613–637.
- _____, 2003, Expressions of ideology in the Formative Period of Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 337–421. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Temme, Matilde, 1999, El Formativo en Putushío—sierra sur del Ecuador. In *Formativo Sudamericano: Una Revaluación*, edited by Paulina Ledergerber-Crespo, pp. 124–138. Abya-Yala, Quito.
- Ubelaker, Douglas H., 2003, Health issues in the Early Formative of Ecuador: skeletal biology of Real Alto. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 259–287. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Valdez, Francisco, Jean Guffroy, Geoffroy de Saulieu, Julio Hurtado, and Alexandra Yepes, 2005, Découverte d'un site cérémoniel formatif sur le versant oriental des Andes. *C. R. Paleovol* 4: 369–374.
- Villalba, Marcelo, 1988, *Cotacollao: Una Aldea Formative del Valle de Quito*. Serie Monográfica 2, Miscelánea Antropológica Ecuatoriana. Museos del Banco Central del Ecuador, Quito.
- _____, Minard Hall, and Patricia Mothes, 2006, Cultural occupation sequence from the Formative Period (2700–1500 BC) up to the Integration Period (1500 AD) and the intercalated volcanic ashes: implications of the stratigraphic analysis at Tonsupa, (Atacames), Esmeraldas Province—northern coast of Ecuador. Poster presented at the Cities on Volcanoes 4 Conference, Symposium VIII: History, Archaeology, and Legends. Quito, Ecuador. January 23–27, 2006.
- Wiley, Gordon R. and Philip Phillips, 1958, *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.

- Zedeño, María Nieves, 1986, Análisis de cerámica Chorrera del sitio Peñón del Río. Tesis de Licenciatura, Centro de Estudios Arqueológicos y Antropológicos (CEAA), Escuela Superior Politécnica del Litoral, Guayaquil.
- Zeidler, James A., 1984, Social Space in Valdivia Society: Community Patterning and Domestic Structure at Real Alto, 3000-2000 B.C. Ph.D. dissertation. Department of Anthropology, University of Illinois at Urbana-Champaign.
- , 1986, La evolución local de asentamientos formativos en el litoral ecuatoriano: el caso de Real Alto. *Arqueología de la Costa Ecuatoriana: Nuevos Enfoques*, edited by Jorge G. Marcos, pp. 85–127. Corporación Editoria Nacional, Quito.
- , 1988, Feline imagery, stone mortars, and Formative Period interaction spheres in the northern Andean area. *Journal of Latin American Lore* 14 (2): 243–283.
- , 1991, Maritime exchange in the Early Formative Period of Ecuador: geo-political origins of uneven development. *Research in Economic Anthropology* 13: 247–268.
- , 1994, Archaeological testing in the middle Jama Valley. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 71–98. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh and Ediciones Libri Mundi, Quito.
- , 1995, Archaeological survey and site discovery in the forested neotropics. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Recent Applications*, edited by Peter W. Stahl, pp. 7–41. Cambridge University Press, Cambridge.
- , 1998, Cosmology and community plan in Early Formative Ecuador: some lessons from tropical ethnoastronomy. *Journal of the Steward Anthropological Society* 26 (1 & 2): 37–68. Urbana, IL.
- , 2000, Gender, status, and community in Valdivia society. In *The Archaeology of Communities: A New World Perspective*, edited by Marcello Canuto and Jason Yaeger, pp. 161–181. Routledge, London.
- , 2003, Appendix A: Formative Period chronology for the coast and western lowlands of Ecuador. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 487–527. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and John S. Isaacson, 2003, Settlement process and historical contingency in the western Ecuadorian Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 69–123. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , Caitlin E. Buck, and Clifford Litton, 1998, Integration of archaeological phase information and radiocarbon results from the Jama River Valley, Ecuador: a Bayesian approach. *Latin American Antiquity* 9: 160–179.
- and Marie J. Sutliff, 1994, Definition of ceramic complexes and cultural occupation in the Jama Valley. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 111–130. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh, and Ediciones Libri Mundi, Quito.
- , and Deborah M. Pearsall (eds.), 1994, *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh, and Ediciones Libri Mundi, Quito.

Early Regional Polities of Coastal Ecuador

MARIA A. MASUCCI

INTRODUCTION

A complex mosaic of regional cultural styles observed within the coastal plain and inland basins of western Ecuador beginning at approximately 500 BC are one expression of extensive cultural transformations following the earlier widespread Late Formative Period Chorrera style (see Chapter 24 in this volume). These transformations are the basis for the definition of a period of regionalization or the “Regional Developmental Period” (500 BC–AD 500) in the cultural historic sequence for Ecuador (Evans and Meggers 1961). This rise of diverse regional cultural styles exhibiting elaborate ceramic figurine art adorned with symbols of authority and power, production and display of luxury goods including gold and silver objects, and urban centers with earthen platforms was initially linked to environment and interaction as central factors affecting sociocultural change (Meggers 1966). The differences in sociopolitical complexity among the cultural phases were attributed to differences in environmental potential and access to outside influences (Meggers 1966:69–70). This model carries overtones of a stage scheme, which is strongly evolutionary. Marcos (1986: 37–38) offers an alternative to an environmentally focused model for Regional Developmental Period developments. His model is based on trade, competition, and conflict. According to Marcos, the appearance of the cultural phases of the period is due to a network of exchange based in traffic of *Spondylus*, which served to create a series of chiefdoms and kin groups or clans. These groups, or the named cultural styles, were in competition to control or expand control of a sphere of influence in the network of long distance trade centered on the exchange of *Spondylus*.

As more regional studies and local sequences have become available, however, it is apparent that environmental boundaries do not match cultural style divisions and evidence for maritime trade and increasing complexity are not uniform either in time or across space. Also, as observed in other areas of the Northern Andes and Central

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

America, horizontal circulation of wealth and power within systems of shifting alliances were just as often a strategy for regional societies as were hierarchical structures and institutionalization of hierarchy, wealth and power (Drennan 1996). Therefore, although regional Ecuadorian pre-Hispanic sequences are still incomplete and many of the possible urban centers and burial complexes have been heavily looted, a series of research programs in coastal Ecuador offer systematic regional data for evaluating and remodeling the Regional Developmental Period and the rise of early regional polities in pre-Hispanic Ecuador.

REGIONALIZATION AND IDENTITY

Betty Meggers' (1966: 113–114) early efforts at synthesizing developments following the Late Formative Chorrera horizon posited two general groupings of regional developments. The first encompassed the southern coastal region, Guayas basin and southern highlands. The local phase names are Guangala, Tejar, Daule, Jambelí, Challuabamba and Tuncahuán, which included most of the area of earlier Chorrera remains. This area was described as lacking key indicators of the development of social stratification. In contrast, the central and northern coastal phases, which include Bahía, Jama-Coaque and Tiaone-Tolita, exhibited stronger evidence of social stratification based on differences in dress, elaborate headdresses and body ornamentation on figurines, regional centers with urban character at the head of settlement hierarchies and ritual or high status structures placed on platform constructions with ramps or staircases (Meggers 1966: 115).

Archaeologists still reference six primary regional phases or styles for the coast during the Regional Developmental Period now dated variably to between 500/200 BC and AD 600/800. These are from north to south: Tolita-Tumaco and Tiaone of Esmeraldas Province; Jama-Coaque I and II of northern Manabí and Esmeraldas provinces; Bahía of central Manabí; Guangala of southern Manabí and coastal Guayas Province; Tejar-Daule of the Guayas river basin; and Jambelí of El Oro Province (Figure 25.1). The original phase names identified florescence in regional art styles and marked changes in material culture as well as, in some cases, sociopolitical organization. More recent research has not significantly altered this assessment, although the tendency to concentrate exclusively on areas with evidence of increasing social and political complexity is waning. This opens the field for the development of new models for understanding the diversity of developments throughout Ecuador during this dynamic period of social transformations rather than focusing our research primarily on those that seem to follow a stage model of societal developments.

Disunion, for example, has been suggested by Lavallée (1992: 9) as an alternative term for the regionalization observed in Ecuadorian societies following the Formative. This concept is then contrasted with union or unification, which is characteristic of the subsequent coastal and highland societies of the Integration Period (Lavallée 1992: 9). This alternative terminology forces us to examine more internal or regionalized phenomena, which may have led to a process of development and socio-political change. This contrasts sharply with earlier models placing interaction, interregional competition and control of long-distance trade as central causal factors. The evidence from recent work suggests that local social, political and environmental settings may provide better answers for understanding the developments in each area as well as the variations in developments between adjacent regions. This shifts attention to the unique elements and characteristics of regional systems rather than on a stage of development achieved or not achieved in

different regions. The following discussion will focus on areas with significant amounts of available data, which have led to interpretations of the development of early regional polities in coastal Ecuador.

SYMBOLS, STYLE AND SOCIETY

Ceramic stylistic traditions emerge during the Regional Developmental Period with a distinctive character in each region. One of the most prominent new stylistic features for the societies on the coast of Ecuador is in ceramic sculpture. Elaborate molded or modeled ceramic figurines adorned with appliqué decorations and multiple colors of slip or post-fired pigment portray individuals with all the attributes of high status personages (Cummins 1992; Valdez and Veintimilla 1992). These figures are commonly seated and wear elaborate attire (headdresses, bracelets, necklaces, nose rings, ear spools) and are adorned with or hold representations of agricultural products, drinking vessels, or spatulas and small bowls associated with use of coca. Variation in iconography and attributes in the figurine art has been used to assign different levels of sociopolitical complexity, identifying the growing importance of rank and social hierarchy in these societies (Valdez and Veintimilla 1992). Unfortunately however, we lack contextual information for the majority of these ceramic figurines.

Another development in ceramic arts is the predominance of a common set of bowls or plates on multiple legs or pedestals accompanied by a suite of hemispherical bowls. These forms suggest vessels for presentation and consumption, possibly related to feasting, but once again contextual information is rarely available. The period is also notable for a proliferation of small ceramic, shell or bone objects created in a myriad of animal and natural shapes including whistles, flutes and atlatl hooks in the shape of birds. Similar images were carved on ceramic spindle whorls and stamps. Ceramic “sellos” or stamps also had their greatest florescence during the Regional Developmental Period in the Jama-Coaque region of northern Manabí and into Esmeraldas (Figure 25.1). Gold and copper metallurgy was also well established by this period particularly among the coast and littoral groups (Hosler 1994). Shell beads and pendants proliferated as well as evidence of their production in primarily non-specialized household contexts (Masucci 1995). The high numbers of spindle whorls and textile impressions on ceramics are evidence of textile use and production but examples have not preserved sufficiently to appreciate their design and function.

Based on the degree of complexity in ceramic and metallurgical production it has been suggested that specialized craftsmen emerged during this period (Cummins 1992). This could be an additional element supporting models of the rise of an elite social class in coastal societies. Great emphasis is also given to the presence of earthen platform mound constructions. Based on ethnohistoric evidence as well as artifactual and structural remains these may have been bases for chiefly residences or for temple or ritual structures. Archaeologists do not agree, however, on the organization of production, need for craft specialists for production of the ceramic and metal objects, or identification of earthen platforms as elite structures. These different artifact and structural features, with settlement hierarchies and other lines of evidence do occur together in some of the coastal regions beginning at approximately 600 BC. A summary of data on these and the other primary regional styles of the coast is presented in order to evaluate the regional distribution and significance of the material remains.

TOLITA

La Tolita-Tumaco is the general name assigned to the archaeological phase or regional culture corresponding to the Late Formative and Early Regional Developmental Period in Esmeraldas Province (600 BC– AD 400). Work by Valdez (1986, 1987) outlines this regional culture and sequence (characterized by one of the most famous sites of coastal Ecuador, La Tolita) associated with similar remains throughout a long stretch of coastal territory extending from northern Esmeraldas to the southwestern coast of Colombia (Figure 25.1). This region covers the wettest of the coastal regions with mangrove swamps along the littoral and tropical forest extending inland.

La Tolita is situated in one of a series of islands in the mouth of the Río Santiago. Saville (1910) described artificial mounds possibly arranged around plazas while others were scattered along the river bank. Recent research has focused on La Tolita Island and has detailed four stages with initial developments at 600-400 BC; the Transition to Classic La Tolita from 400-200 BC; the emergence of Classic La Tolita at 200-90 BC; and the decline of the center occurring at AD 350 (Valdez and Veintimilla 1992). The area of pre-Hispanic population



Figure 25.1. Map of Ecuador showing locations of modern coastal provinces, distribution of Regional Developmental Period cultural phases and archaeological sites referenced in the text.

covers over 1 km² including approximately 40 artificial mounds (tolas) in a range of sizes. According to Valdez, the remains in this core area describe a nucleated and dense population, which could be referred to as urban (Valdez 1987: 11). In addition to the impressive mounds and the extent of remains there is the high number of burials, primarily discovered through looting. The spectacular finds of ceramics, gold, silver, copper and stone ornaments of emerald, quartz and obsidian have fueled continued looting over the years. Valdez (1992) describes the island site as a major ceremonial center that developed out of the local Chorrera base. He argues that the center held sway over this area and should be regarded as an early chiefdom. Bouchard supports the assertion that the site was an important cultural, ceremonial and funerary center and also probably functioned as a social-political center that exercised hegemony from the island along the northern Ecuadorian littoral (1995: 75).

Notable in the material recovered at La Tolita is the use of exotic materials in the production of attire, utensils and figures which excavators associate with a complex cult. Figurines and statuettes are thought to represent high-ranking personages as well as mythological beings (Figure 25.2). An important factor in examining the development, sequence



Figure 25.2. La Tolita figurine with human and feline attributes. From the collection of the Museo del Banco Central del Ecuador, Guayaquil (MBCG No. GA-35-1924-81; photograph from Valdez and Veintimilla 1992: fig. 125).

and nature of La Tolita-Tumaco may be the role gold played in the territorial expansion of the culture. According to Bouchard (1995: 79–80) the search for raw materials in the coastal region and western foothills is a likely explanation for colonization of the region. As for the decline of La Tolita society, Valdez cites diminishing returns in food production (Valdez 1986). But Bouchard affirms the need to examine other hypotheses based on different interpretations of the limits and challenges of the northern Ecuadorian littoral setting. For example, natural causes or social-political factors such as the rise of local power in colonized areas and subsequent loss of central power could have been factors (Bouchard 1995:78). This latter model would correspond with the sequence of coastal regional developments in other areas. In this model, La Tolita would represent a relatively short-term consolidation of power by one of many potential competing social groups. Similar consolidation occurred at times in other, although not all, adjacent regions.

Summarizing the sequence of the northern coast after the decline of La Tolita, Guinea (1995) describes the Tiaone Phase dated to AD 1–500 and characterized by dispersed houses of extended families, followed by a Transitional Phase from AD 500–700. She finds that the fall of La Tolita was significant enough to cause a depopulation or abandonment of the coast especially along the peripheries. These findings also match settlement histories for the southern coast Guangala Phase, which experienced a change in settlement at approximately the same period (Masucci 1992). It is not likely that changes in the southern Guayas area were directly due to the decline of La Tolita, but rather that the period from AD 500–800 marks a critical point in the cycles of development in coastal cultures which was transitional to complex hierarchical societies of the Integration Period.

JAMA-COAQUE

Research in the Jama Valley by Zeidler and Pearsall (1994) has defined the chronology for the Jama-Coaque culture in northern Manabí Province placing it within both the Regional Developmental and Integration periods (355 BC to AD 1532). Jama-Coaque I, which corresponds to the local Muchique 1 phase and the Regional Developmental Period, spans 755 years and is marked by an expansion of population from the dry tropical forests of the coastal strip to humid upland interior valleys. The research has also identified a series of ash falls based on tephra analysis which may explain the break in cultural continuity in the area between Chorrera and Jama-Coaque (Zeidler and Pearsall 1994). The site of San Isidro located in the middle reaches of the Jama Valley (Figure 25.1), approximately 25 km from the coast, also assumed a role of central place during this period and remained the center of a settlement hierarchy. Mound building at the site continued with a recapping of the central platform mound measuring 17 m above the modern surface and approximately 100 m in diameter, totaling a calculated volume of 88,458 m³. This central platform mound is the basis for the interpretation of the site as a regional ceremonial and administrative center at least during the Jama-Coaque occupation. Other characteristics support this assessment. The site is the largest and deepest in the immediate alluvial area as well as the entire Jama drainage, placing it at the top of a regional settlement hierarchy. The platform is in an area of high site density and the mound is considered to be an expression of monumental architecture by Zeidler. The excavators conclude that Jama-Coaque represented a form of complex chiefdom that emanated from a single ceremonial center with sufficient surplus production to support the dense residential population and the construction of the mounds in the valley (Zeidler 2001). The chiefly polity may have controlled a large sector of a river

valley possibly 15–18 km in diameter, that at times included two or more secondary mound centers. The sources of power for the possible paramount chiefdom would have been foci of competition and points of conflict between regional organizations, which would work against any long-term territorial domination of the valley system by a single authority. These sources of power would have had access to prime agricultural land, precious materials, and maritime and highland trade routes (Zeidler and Pearsall 1994; Zeidler 2001).

Much of the attention focused on the Jama-Coaque tradition is due to the large number of looted figurines characterized by elaborate decoration representing complex apparel as well as ritual paraphernalia and possessions that mark social and political rank (Cummins 1994) (Figure 25.3). Similar to Bahía and La Tolita, Jama-Coaque figurines are decorated with elaborate personal ornament, adornments including headdresses decorated with birds and agricultural products, full-face masks, pectorals, clothing flaps, ear spools and nose rings on seated figures. These features support the assessment that



Figure 25.3. Seated masculine Jama-Coaque figurine with apparel suggesting high rank. (Private collection; photograph from Valdez and Veintimilla 1992: fig. 78).

figurines portray high status individuals. Furthermore, as in the other areas, these elaborate hollow ceramic figurines suggest some degree of craft specialization. Cummins (1994) finds it difficult to imagine their creation by household production of occasional artisans rather than a group of specialists. Archaeological evidence for workshops, however, has not been found.

BAHIA

Estrada (1957, 1962) first defined the Bahia style based on his excavations at the modern town of Bahía de Caráquez (500 BC–AD 500). The style has been identified in an area over 150 km along the dry tropical forests of southern and central coast of Manabí Province and La Plata Island (Figure 25.1). Platform mounds of likely ceremonial use were described by Jijón y Caamaño ([1952] 1997) at Manta and by Estrada (1962) in the Manta suburb of Esteros. The Los Esteros site is now under modern Manta but is reported to have had a large number of high, pyramidal shaped earthen mounds (Estrada 1962). Bahía and Jama-Coaque ceramics include examples of house models with stairways leading up to a structure with seated figures (Schavelzón 1981). The descriptions of Jijón y Caamaño and Estrada of the rectangular mounds suggest a correspondence with these ceramic models.

Bahía ceramics are particularly noted for complex relief that produced elaborate images requiring great skill in ceramic sculpture. The pottery is often decorated with post-fired application of bright colors including green, yellow, red, white and black (Figure 25.4).

Norton (1982: 59) reports figures—referred to as Bahia Gigante—that were grouped in gulleys or washes leading directly to the beach at the site of Los Esteros. The concentration of Bahía remains and shell caches on La Plata Island is interpreted as some form of exchange center (Marcos and Norton 1981) or religious sanctuary with pilgrimages producing concentrations of figurine fragments and tusk-shaped stones with anthropomorphic carving (Dorsey 1901).

Iconography and presence of sumptuary objects and ritual utensils associated with figurines has been interpreted as evidence of an aristocratic priesthood. The figures portrayed are interpreted as half man, half feline (Valdez and Veintimilla 1992: 198–199). For example, large, hollow, figurines associated with this phase include modeled or molded examples of individuals with elaborate ornamentation. Some of these figures hold objects of ritual or social function, including musical instruments, while others have elaborate headdresses and apparel suggestive of high rank (Valdez and Veintimilla 1992). A bottle with three globular chambers pictured by Meggers (1966: 93, fig. 31) shows two figures with elaborate headdresses, nose rings, tusk shaped pendants, holding snakes in each hand.

In addition to descriptions from Manta and Esteros, the rise of Bahía phase ceremonial centers is documented at the site of Salango (Figure 25.1). Norton describes an important ceremonial center with intensification of shell working and a small urban center with a drainage system, low platforms, prepared floors of clay which vary in color along with adobe walls, and a cemetery (1982: 54; Norton et al. 1983). A structure interpreted as ceremonial or mortuary in function measured 10 × 10 m with adobe walls bordered by deep wall trenches, stone alignments and linear posthole patterns. The evidence cited by the excavators for the interpretation of the structure is the large number of Bahía burials and associated grave goods – such as a tumbaga crown and a cache of tusk-shaped stone figurines like those found on La Plata Island, set upright in groups in the floor of the structure (Norton et al. 1983).



Figure 25.4. Seated modeled Bahía figurine representing a high ranking individual. From the collection of the Museo del Banco Central del Ecuador, Quito. (MBCQ No. 1-23-81; photograph from Valdez and Veintimilla 1992: fig. 54).

GUANGALA, GUAYAS

The Guangala cultural style is associated with the semi-arid southwestern coastal region extending from southern Manabí Province south and inland to the western edge of the Guayas basin. The legacy of the earlier Chorrera tradition is visible in the continuation of iridescent painting on dark, reduced wares. Figurines are common, hinting at aspects of daily life such as costume and body decoration as well as ritual life. The most notable common element on the Guangala figurines is the presence of incised or engraved motifs, which may represent body tattooing or painting (Figure 25.5). Motifs may associate with ethnicity or status, but the figurines do not exhibit the elaborate apparel and adornments found in the coastal styles to the north (Valdez and Veintimilla 1992: 200–201). Therefore these images create a striking contrast with the figurines of the other coastal groups and suggest unique aesthetics or different socio-cultural principles or structures.

Most notable in the Guangala ceramic style is the change to bowls, cups and other complex forms decorated in two or three colors, suggestive of feasting assemblages (Figure 25.6). These vessels are distinct in form and decoration from early Guangala



Figure 25.5. Guangala masculine figurine whistle with engraved body decoration and hammered gold earrings. From the collection of the Museo del Banco Central del Ecuador, Guayaquil. (MBCG No. GA 2-2164-82; photograph from Valdez and Veintimilla 1992: fig. 65).



Figure 25.6. Guangala polychrome bowl with geometric decoration. (Private collection; photograph from Valdez and Veintimilla 1992: fig. 70).

bowls which continue the Chorrera traditions of smudged vessels with iridescent and pattern burnish designs. Following many of the same arguments used in adjacent areas to infer hierarchy and specialized craft production, the high production cost of these vessels suggests the existence of an elite class and social hierarchy (Stothert 1984). Other supporting lines of evidence that would signal the presence of a hierarchical social structure, however, have not been found (e.g., settlement hierarchy, wealthy burials, figurines showing individuals with symbols of power or status). Most intriguing is evidence from compositional analysis of Guangala fineware bichrome and polychrome ceramics indicating multiple production sites that do not correlate with the site where the pottery was discovered (Masucci 2001). A model of trade might explain this evidence although the occurrence of vessels from the same site with a range of compositions probably suggests the circulation or gifting of festival containers. For example, vessels, which compositionally indicate southern Guayas production, were found at the site of Salango in southern Manabí and the reverse was observed as well (Masucci 2001). The creation of high status goods or the control of luxury items as an aspect of competitive hierarchical societies in the Intermediate Area is well documented (Drennan and Uribe 1987) and ethnohistoric evidence from Ecuador demonstrates the association of finely decorated vessels with native nobles (Salomon 1986: 124). However modern groups in the eastern lowlands of Ecuador have a polychrome tradition associated with ritual and gift giving, rather than display of elite status (Whitten 1975).

Settlement studies reveal more of a pattern of dispersed settlements than clear evidence for ceremonial centers with surrounding settlement hierarchy. A pattern of dispersed farmsteads extending inland from the coast and reaching secondary and tertiary tributaries of the primary southern coastal river courses has been described since the earliest investigations and naming of the Guangala Culture by Bushnell (1951). Recent systematic survey has verified this, providing evidence of an expansion of settlement beginning in the Late Formative and continuing until at least AD 600, when the settlement pattern appears to restructure with depopulation in the peripheries and nucleation in wetter inland areas and along the coast at sites that became major ports in the later Integration Period (Masucci 1992; Stothert 1993). During the same period a similar process of settlement expansion inland from the coast is described by Zeidler for the Jama Valley (Zeidler and Pearsall 1994).

The complexity of Guangala social and political organization is not well understood. Stothert (1984) presents Guangala society as moving in the direction of increasing complexity, an "incipient chiefdom". This is a reasonable conclusion given current evidence although, alternatively, Guangala society can be seen as having a different and less complex trajectory than that of neighboring cultures. For example, there is no convincing evidence for differential access to exotic or valued goods. Early and Middle Guangala Phase settlements throughout the southwest coast share a similar range of non-local goods, including imported marine resources and material culture regardless of site location. These goods include small amounts of copper and gold artifacts and finished obsidian tools. The artifact assemblages typically include small percentages of decorated fineware ceramics, ceramic flutes, ceramic figurines, ceramic spindle whorls and carved shell ornaments (Bushnell 1951; Meggers 1966; Masucci 1992; Stothert 1993). Of the burials recorded, although fineware ceramics are sometimes present, the burial goods do not indicate significant wealth, status or differential access. Site contents across the region do not show patterns of site specialization or differentiation. Therefore, in contrast to neighboring groups to the north, the southern coastal inhabitants do not exhibit either complex iconography on figurines, platform constructions, or differential access or accumulation of wealth or luxury goods in

burials. There is a tendency to attribute this difference in developments to lower agricultural potential in the semi-arid setting, but the region encompassed by the Guangala style includes wetter zones in the north, that extend to southern Manabí, as well as a range of zones with different agricultural potentials traversing from the coastal interior throughout the region. Therefore, explanations attributing agents with social and political choices seem more realistic than determination by environmental setting.

EVIDENCE FOR EARLY CHIEFDOMS

Societies labeled chiefdoms have come to be defined by their variability in social and political structure rather than by any particular characteristic. Drennan (1987) has tackled the definition through comparative work in northern South America. Sequences of social changes, potential causal factors and material expressions of social structure are highly variable. The specific example of coastal Ecuador offers further evidence of the range of possible chiefly organizations.

Zeidler (2001), Valdez (1992) and Bouchard (1995) among others have applied the term “chiefdom” to La Tolita, Bahía and Jama-Coaque cultures, emphasizing the existence of primary centers with artificial platform mounds which served as a focus for elite residences or ritual activities, site hierarchies, elaborate mold and modeled figurines with apparel and iconography of power as well as possible shamanistic elements, and burials with highly valued goods of pottery, shell, stone, gold, silver and copper. However, all these were relatively ephemeral and short-lived institutions that did not always lead to further, more complex developments. Also of relevance, many of the ceramic figurines used in these models are looted artifacts without site context. In contrast, Guangala Culture exhibits florescence in ceramic arts and movement of luxury goods, but there is no evidence that one subgroup consolidated power or exhibited control or authority in access, production or distribution of either subsistence or luxury goods. Inter and intra settlement feasting and circulation, probably emphasizing gifting of materials such as fine, polychrome ceramics, is the most likely social situation. Cementing social ties through the exchange of valued material occurs today, through a vast network moving subsistence goods among producers in distinct environmental zones. This type of mutualism and interdependence between settlements and communities fits our current evidence for the Guangala Culture (Reitz and Masucci 2004). The archaeological evidence does not preclude, however, loose alliances in which certain individuals or segments of the society enjoyed higher status or power through either social, economic or even religious means.

Some coastal Ecuadorian cultures experienced florescence in ceramics and metallurgy along with brief periods of consolidation expressed in hierarchical social and settlement systems. In adjacent areas similar florescence is not accompanied by the rise of hierarchical structures but instead exhibits down-the-line trade, household level craft production, and circulation of luxury goods and sumptuary items among dispersed rather than nucleated or hierarchically arranged settlements. Although an argument for greater agricultural potential could be made as one moves from south to north along Ecuador’s coastal plain region, there is also great diversity from littoral to inland areas in all regions. Further, the few valley-wide surveys which have been conducted document population expansion into inland and upland areas as one of the key transitional changes marking transition from the Late Formative to Regional Developmental periods (Masucci 1992; Zeidler and Pearsall 1994). Therefore, there were similar conditions in each region with complex mosaics

of lands with varying agricultural potential, littoral access to maritime long distance trade, contact and trade with neighboring coastal and other societies at even greater distances for obtaining exotic raw materials and finished goods, and technological expertise in ceramics, shell-working, lapidary work and metallurgy. Control and differential access to any of the above are common markers of hierarchical social structures and all were present as sources for, or demonstrations of power among the coastal societies. Such structures were not sustained for long periods in any of the regional systems and were absent from others.

More detailed, systematic evidence from Ecuador would allow us to consider the wide spectrum of expressions of hierarchical structures described for the northern Andean region such as in the Contact Period “cacicazgos.” For example, we might consider whether the proposed chiefdoms, which developed as regional polities in coastal Ecuador, were based on alliances or if segments of a society held sway or actually dominated other segments of the society or satellite groups. The lack of extensive iconographic and physical evidence of coercive force or warfare as well as the short-lived and often ephemeral nature of the stratification suggest a variation similar to that described by Cardenas-Arroyo (1996) for the Contact Period Quimbayas on the eastern bank of the Cauca River, Colombia. Chiefly status in this case was inherited, but these societies were not politically tightly structured and power was limited to the chief’s own people and did not extend to domination over other groups. Another example is that of the Tairona chiefdoms of the northern coast of Colombia described in sixteenth and seventeenth century chronicles as actually holding sway over other satellite groups rather than being part of a group of peoples united through alliances (Cardenas-Arroyo 1996). Cardenas-Arroyo (1996:68) uses the term “spheres of action” within which several satellite groups live. Based on detailed study of the post-Conquest cacique structures of southern Colombia and northern Ecuador, Rappaport (1990) warns against applying these structures to pre-Hispanic situations. But, these examples can offer more nuanced models to explain the range of hierarchical or incipient hierarchical organizations evidenced by Ecuadorian societies in the transition following the Late Formative period.

CONCLUSION

The original space-time systematics for pre-Hispanic Ecuadorian cultures that established the Regional Developmental Period implied progressive stages that were strongly evolutionary. Several causal factors were cited for sociopolitical development, including competition, control of long distance trade and access to luxury items. Beyond this evolutionary structure, the initial basis for naming a diverse set of cultures were localized artistic styles or expressions, especially in the ceramic and metal arts but probably also including cloth, that emerged from the Late Formative Chorrera tradition. Today the original definitions seem confining, masking diversity among and within regions, emphasizing a developmental scheme based on cultural evolution that focused our attention on the emergence of social or material hierarchy. The complex range of localized patterns, styles and sequences of the Late Formative and Early Regional Developmental period societies of coastal Ecuador suggests politically independent systems in contact with each other but having unique social and material expressions. On the other hand, the original space-time organization proposed by Meggers (1966), in which a set of central and northern coast societies exhibited a unique set of traits that implied the formation of social hierarchies and rise of local elites utilizing symbols and materials of authority, is still generally accepted. The issue

now becomes explaining the differences between areas. However, perhaps we can provide more sophisticated models for social systems in all the areas rather than dividing them into two groups based on the achievement, or failure to achieve, a hierarchical society. As has been expressed by a number of authors throughout the northern Andean area (e.g., Drennan 1996; Drennan and Uribe 1987), variations are more interesting than the commonalities. Such a change in focus will bring a greater appreciation of the complexities of subsequent, late pre-Hispanic societies in the region and their various paths through a world of social, natural and political forces.

REFERENCES

- Bouchard, Jean F., 1995, Arqueología de la costa del Pacífico Nor-Ecuatorial. Evaluación preliminar de los cambios ocurridos en los últimos decenios. In *Primer Encuentro de Investigadores de la Costa Ecuatoriana en Europa*, edited by Aurelio Alvarez, Silvia G. Alvarez, Carmen Fauría, and Jorge G. Marcos, pp. 67–95. Ediciones Abya-Yala, Quito.
- Bushnell, G. H. S., 1951, *The Archaeology of the Santa Elena Peninsula in Southwest Ecuador*. Occasional Papers of the Cambridge University Museum of Archaeology and Ethnology, No. 1. Cambridge University Press, Cambridge.
- Cardenas-Arroyo, Felipe, 1996, Complex societies in prehispanic Colombia: the Tairona as case study. In *Chieftains, Power and Trade: Regional Interaction in the Intermediate Area of the Americas*, edited by Carl H. Langebaek and Felipe Cardenas-Arroyo, pp. 63–74. Departamento de Antropología, Universidad de los Andes, Bogotá, Colombia.
- Cummins, Tom, 1992, Tradition in Ecuadorian pre-Hispanic art. The ceramics of Chorrera and Jama-Coaque. In *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*, edited by Francisco Valdez and Diego Veintimilla, pp. 63–81. Dinediciones, Quito.
- , 1994, La tradición de figurinas de la costa ecuatoriana: Estilo tecnológico y el uso de moldes. In *Tecnología y Organización de la Cerámica Prehispánica en los Andes*, edited by Izumi Shimada, pp. 157–172. Fondo Editorial, Pontificia Universidad Católica del Perú, Lima.
- , Julio Burgos Cabrera, and Carlos Mora Hoyos, 1996, Arte prehispánico del Ecuador. Huellas del pasado: los sellos de Jama-Coaque. *Miscelánea Antropológica Ecuatoriana Serie Monográfica*, No. 11. Banco Central del Ecuador, Guayaquil.
- Dorsey, George A., 1901, *Archaeological Investigations on the Island of La Plata, Ecuador*. Field Columbian Museum, Publication 56, Chicago.
- Drennan, Robert D., 1996, Betwixt and between in the Intermediate Area. *Journal of Archaeological Research* 4 (2): 95–132.
- and Carlos A. Uribe (eds.), 1987, *Chiefdoms in the Americas*. University Press of America, Lanham, MD.
- Estrada, Emilio, 1957, *Prehistoria de Manabí*. Museo Víctor Emilio Estrada, Publicación 4. Guayaquil.
- , 1962, *Arqueología de Manabí Central*. Museo Víctor Emilio Estrada, Publicación 7. Guayaquil.
- Evans, Clifford and Betty J. Meggers, 1961, Cronología relativa y absoluta en la costa del Ecuador. *Cuadernos de Historia y Arqueología*, Año XI, Vol. I, No. 27. Guayaquil.
- Guinea, Mercedes 1995, Diferentes mecanismos de articulación hombre-entorno en la costa norte del Ecuador: La desembocadura del Esmeraldas del principio de nuestra era al año 1527. In *Primer Encuentro de Investigadores de la Costa Ecuatoriana en Europa*, edited by Aurelio Alvarez, Silvia G. Alvarez, Carmen Fauría and Jorge G. Marcos, pp. 47–66. Ediciones Abya-Yala, Quito.
- Hosler, Dorothy, 1994, *The Sounds and Colors of Power. The Sacred Metallurgical Technology of Ancient West Mexico*. MIT Press, Cambridge, MA.
- Jijón y Caamaño, Jacinto, [1952] 1997, *Antropología Prehispánica del Ecuador*. Pontificia Universidad Católica del Ecuador, Quito.
- Lavallée, Daniele, 1992, Preface. In *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*, edited by Francisco Valdez and Diego Veintimilla, pp. 7–11. Dinediciones, Quito.
- Marcos, Jorge G., 1986, Breve prehistoria del Ecuador. In *Arqueología de la Costa Ecuatoriana: Nuevos Enfoques*, edited by Jorge G. Marcos, pp. 25–50. Corporación Editora Nacional, Quito.
- and Presley Norton, 1981, Interpretación sobre la arqueología de la Isla de la Plata. *Miscelánea Antropológica Ecuatoriana* 1: 136–154.

- Masucci, Maria A., 1992, Ceramic Change in the Guangala Phase, Southwest Ecuador: A Typology and Chronology. Ph.D. dissertation. Department of Anthropology, Southern Methodist University, Dallas, TX.
- , 1995, Marine shell bead production and the role of domestic craft activities in the economy of the Guangala Phase, southwest Ecuador. *Latin American Antiquity* 6 (1): 70–84.
- , 2001, Defining ceramic change and cultural interaction: results of typological, chronological, and technological analyses of Guangala Phase ceramics. *Andean Past* 6: 175–208.
- Meggers, Betty J., 1966, *Ecuador*. Thames and Hudson, London.
- Norton, Presley, 1982, *Cambio y Continuidad en Salango*. Museo Arqueológico del Banco del Pacifico, Guayaquil.
- , Richard Lunnis and Nigel Nayling, 1983, Excavaciones en Salango, provincia de Manabí, Ecuador. *Miscelánea Antropológica Ecuatoriana* 3:9–80.
- Rappaport, Joanne, 1990, *Politics of Memory*. Cambridge University Press, Cambridge.
- Reitz, Elizabeth J. and Maria A. Masucci, 2004, *Guangala Fishers and Farmers. A Case Study of Animal Use at El Azúcar, Southwestern Ecuador*. University of Pittsburgh Memoirs in Latin American Archaeology No. 14. Pittsburgh.
- Salomon, Frank, 1986, *Native Lords of Quito in the Age of the Incas: The Political Economy of North-Andean Chiefdoms*. Cambridge University Press, Cambridge.
- Saville, Marshall H., 1910, *The Antiquities of Manabí, Ecuador: Final Report*. The Heye Foundation, Contributions to South American Archaeology, 2. New York.
- Schavelzón, Daniel, 1981, *Arqueología y Arquitectura del Ecuador Prehispánica*, edited by Francisco Valdez and Diego Veintimilla. Universidad Nacional Autónoma de México, México, D.F.
- Stothert, Karen, 1984, A New Look at Guangala Society and Economy: A Discussion of the Origin and Development of Chiefdoms on the Santa Elena Peninsula, Ecuador. Paper presented in the Symposium on Cosmology and Social Structure in the Andes at the 49th Annual Meeting of the Society for American Archaeology, Portland, Oregon, April 11–14, 1984.
- , 1993, *Un Sitio de Guangala Temprano en el Suroeste del Ecuador*. National Museum of Natural History, Smithsonian Institution, Washington, D.C. and Anthropology Museum, Central Bank of Ecuador, Guayaquil.
- Valdez, Francisco, 1986, Investigaciones arqueológicas en La Tolita (Esmeraldas, Ecuador). *Miscelánea Antropológica Ecuatoriana* 6:81–107.
- , 1987, *Proyecto Arqueológico “La Tolita” (1983–1986)*. Museos del Banco Central del Ecuador.
- , 1992, The Tolita ceramic tradition. In *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*, edited by Francisco Valdez and Diego Veintimilla, pp. 135–140. Dinediciones, Quito, Ecuador.
- and Diego Veintimilla (eds.), 1992, *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*. Dinediciones, Quito, Ecuador.
- Whitten Jr., Norman E., 1975, *Sacha Runa, Ethnicity and Adaptation of Ecuadorian Jungle Quichua*. University of Illinois Press, Urbana.
- Zeidler, James A., 2001, Central coast regional chiefdoms. In *Encyclopedia of Prehistory. Volume 5: Middle America*, edited by Peter N. Peregrine and Melvin Ember. Kluwer Academic/Plenum Publishers, New York.
- , and Deborah M. Pearsall (eds.), 1994, *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*. University of Pittsburgh Memoirs in Latin American Archaeology, Vol. 8. Pittsburgh.

Late Pre-Hispanic Polities of Coastal Ecuador

COLIN McEWAN AND FLORENCIO
DELGADO-ESPINOZA

INTRODUCTION

In her synthesis of Ecuadorian prehistory published some four decades ago, Betty Meggers (1966) posited a broad evolutionary progression of pre-Hispanic cultures culminating in an “Integration Period” purportedly lasting for up to a thousand years (ca. AD 500 – late fifteenth century Inca invasion). No doubt recognizing that this general rubric was being applied somewhat optimistically, Meggers declared that, “the extent to which the archaeological phases of the Integration Period represent integrated political units is impossible to determine at present. Spanish listings of tribes and linguistic groups do not correlate well with archaeological phase areas, but several sources mention confederations of towns under a single leader both on the coast and in the highlands. This, together with marked differences in status revealed by the burial pattern, suggest that some if not all of the archaeological phase areas may have been integrated politically on a temporary basis at least” (1966: 122).

A number of colleagues have underlined the futility of trying to impose a uniform, stage-wise model of cultural progress on the Ecuadorian data (see, e.g., Marcos 1986: 37–38; DeBoer 1996: 170; Zeidler and Isaacson 2003: 70; Chapter 25 in this volume). Cultural evolution is an uneven process at best and rather than any predictable uniformity, the inter-ethnic rivalries and alliances that emerged in pursuit of access to and control over resources have led to marked variability in regional social organization and interaction. While the term “chiefdom” may still be apposite in certain contexts, some late pre-Hispanic coastal polities clearly achieved a different order of social and political complexity. Moreover, new field data now also reveal that the coastal sequence from late Formative on through to Spanish contact has been punctuated by disruptive and often unpredictable natural events. These range from the tephra air-falls that have periodically blanketed large areas of the

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

western lowlands following massive volcanic eruptions in the northern Andean cordillera and whose impact and consequences are only now being evaluated (Zeidler and Isaacson 2003), to prolonged droughts, major El Niño floods and tsunamis. These must have varied greatly in scale and duration but their identification and dating in the archaeological record has barely begun, and for the most part their impact and long-term cultural consequences have yet to be fully evaluated.

Archaeological fieldwork undertaken in recent decades can be compared to shining a flashlight into the corners of a dark room. Site surveys, mapping, test excavations and occasionally more extensive programs of area excavation have been applied in different combinations in various settings. Our knowledge of site sizes and their internal organization as well as site densities, hierarchies and inter-site relationships is therefore still very uneven.

This overview examines what kind of “integration” was achieved in different contexts and also evaluates some of the insights provided by the early ethnohistoric records, in comparison with the archaeological record. We deal first with the Santiago-Cayapas Basin and northern Manabi, then look at the Guayas Basin, Gulf of Guayaquil, Puná Island and the Santa Elena Peninsula, concluding with southern Manabi (Figure 26.1). This geographical zoning in no sense implies bounded constraints on regional interaction but simply provides a useful framework for assessing current knowledge.

SANTIAGO-CAYAPAS BASIN

For reasons that are still not well understood, the remarkable La Tolita-Tumaco florescence (100 BC - AD 300) was all but extinguished by around AD 350. The succeeding Las Cruces and Herradura phases seem to represent a withdrawal to the secondary drainages of the Santiago and Cayapas, respectively, from about AD 600 onwards (De Boer 1996: 130–159). The latter is followed around AD 1300 by the Tumbaviro phase which De Boer describes as “sinking to new depths of insularity and aesthetic poverty” with a much simplified inventory of thick-walled bowls and jars (1996: 160). He surmises that the retreat to inter-fluvial ridge-top locations for small, dispersed settlements was likely motivated by defensive concerns (DeBoer 1996: 193), and emphasizes the apparent contrast with ethnohistoric accounts of thriving coastal ports and markets such as Atacames (DeBoer 1996: 171; Guinea 1995; Zeidler 2001). De Boer also notes that the Esmeraldas coastline is vulnerable to assault by tsunamis, with recorded examples in historical times (DeBoer1996: 1), although the signature of such events in the archaeological record is elusive (but see Bird 1987 for a discussion of evidence for such events in Early Horizon coastal Peru, and their possible impact).

NORTHERN MANABI

Emilio Estrada (1957) first named the long Jama-Coaque cultural sequence spanning the Regional Development and Integration Periods in northern Manabi. While there is remarkable overall continuity in the ceramic assemblage, the research undertaken by Zeidler and colleagues in the Jama Valley and environs has been instrumental in introducing a sense of historical contingency into our understanding of the dynamics of social evolution. Zeidler (2003 and Chapter 24 in this volume) describes how large swathes of the western lowlands have been periodically smothered with varying depths of volcanic ash. The Jama-Coaque II occupation in the Jama Valley post-dates a tephra airfall around AD 400 that separates it from the earlier Jama-Coaque



Figure 26.1. Map of coastal Ecuador showing the principal late prehispanic cultures and sites.

I or Muchique 1 phase. This event may not have had such a devastating effect on human occupation as the ca. 355 BC Pulahua eruption because of the more extensive hill-slope farming strategies employed (Zeidler and Isaacson 2003). Based on a corpus of radiocarbon dates from stratigraphic contexts, Jama-Coaque II is now sub-divided into three phases of variable length, Muchique 2, 3 and 4, which range from AD 400 to 1532 (Zeidler 1990; Zeidler and Sutliff 1994). The vessel forms that mark the appearance of a new ceramic complex in Muchique 1 include flat-rimmed polypod bowls, pedestal bowls (compoteras) and wide-mouthed globular ollas; these continue into the succeeding phases with the addition of new applications of diagnostic red-band painting and finger-impressing (Zeidler and Sutliff 1994: 125–29). These new data apply primarily to the utilitarian components of the ceramic assemblages and underline the need for more information on the provenience, contexts and chronology of the elaborate ceramic figurine tradition for which Jama-Coaque culture is justly renowned.

GUAYAS BASIN

The Guayas Basin has long been a significant locus of intensive agricultural production and the remnants of raised fields and drainage canals offer visible evidence of pre-Hispanic landscape management on a broad scale. When first observed from the air these were compared with other extensive raised field systems in the tropical lowlands that are subject to annual inundation, ranging from the San Jorge Basin in Colombia to the Llanos de Mojos in eastern Bolivia (see discussion of raised fields in Chapters 11, 12, 13, 16 and 46 in this volume) and even including the high altitude Titicaca Basin complexes in Peru and Bolivia (e.g., Carney et al. 1993; Erickson 1993; Janusek and Kolata 2004; Parsons 1969). Although many of the Guayas Basin field systems have been obliterated in recent decades by modern agricultural production, some nine main surviving concentrations of raised fields covering roughly 500 sq km have been identified (Denevan 1985).

On the Rio Daule the initial construction of raised field systems is thought to have been underway by the late first millennium B.C. and to have been progressively elaborated in the course of the long Yumes phase (AD 400–1600) (Stemper 1993). Stemper infers that the mobilization of the labor force required to maintain the continuously expanding cycle of agricultural infrastructure and production would have reinforced local chiefly authority and power and that this finds material expression in the appearance of a two-tiered settlement pattern with the construction of the first earthen platform mounds (tolas) beginning around AD 400–600 (Stemper 1993:168). Research in the upper Guayas Basin (Guillaume-Gentil 1988, Guillaume-Gentil et al. 1999), at Samborondon (Denevan and Mathewson 1983) and at Peñón del Rio at the mouth of the Babahoyo River (Marcos 1987, Dominguez 1990) and in the adjacent Milagro-Yaguachi-Taura area (Delgado-Espinoza 1992) demonstrates further evolution in the settlement hierarchy among Milagro-Quevedo polities from AD 800–1500. The Milagro-Yaguachi-Taura raised field complexes are associated with a three-tier site hierarchy in which domestic households are located in or immediately adjacent to raised fields while the local elite are based at the larger, higher order sites (Delgado-Espinoza 2005). Some of these are organized around single tolas while others have groups of tolas forming conspicuous landmarks visible from afar in the riverine flatlands. From these centers local lords oversaw deployment of the labor force, managed production and controlled access to exotic materials such as *spondylus* beads, metalwork, obsidian and textiles (Delgado-Espinoza 2006). Delgado (2002) surmises that there was a progressive expansion of the raised field systems and their accompanying settlements from the upper and middle basin towards the mouth of the Guayas drainage where most of the mound construction took place during the

late period (Acuña 1996; Stemper 1988). This is marked by stacked urn burials in tolas and a distinctive widespread pottery style whose notable feature is the use of appliqué zoomorphic designs to embellish ceremonial vessels (Estrada 1957; Zevallos 1995).

The Peñón del Río site is ideally positioned to regulate the flow of resources coming into the Gulf of Guayaquil from further afield. The late Milagro-Quevedo occupation at Peñón del Río features the construction of mounds around open public spaces (Dominguez 1990). Faunal remains recovered from the main mounds and adjacent plazas indicate consumption of domesticated duck (*cairina moschata*), delicacies such as guinea pig (*cavia porcellus*) and llama (*lama*) as well as coca (Stahl 2005; Stahl, Muse and Delgado 2006). Muse (1981, 1991) proposes that the site functioned as a kind of entrêpot to which products were brought to be stored and exchanged and that the power of local lords derived from their capacity to organize and regulate this exchange via regional trading contacts and alliances. Local elites at this and other nearby sites had access to imported copper alloy objects including “money-axes” while some hammered sheet metal objects also seem to have been produced locally (Sutliff 1989). Balsa wood (*ochoroma* sp.) is native to the coastal lowlands and the riverine societies of the lower Guayas basin used balsa and cane rafts as well as canoes to trade upriver, linking with terrestrial routes that facilitated exchange between highlands and lowlands (Zevallos 1995). Thus, local lords seem to have been instrumental in extracting and utilizing the surplus from agricultural production in order to participate in exchange networks to obtain a range of sumptuary goods including marine shells and obsidian flakes to be worked by specialized artisans (Suarez 1991; see also Lopez 2005).

PUNA ISLAND, GULF OF GUAYAQUIL

Puná Island is also strategically located at the mouth of the Gulf of Guayaquil, controlling traffic across the Gulf to their coast, as the Incas found when an expeditionary force dispatched by Topac Inca Yupanqui met death at the hands of Puná sailors. Early colonial accounts identify a powerful Punae cacique and warlord Tomala, who held sway over six subject chiefs on the island (Volland 1995). Archaeological identification of Puná settlements has barely begun but it is apparent that the ceramic inventory features polished blackwares akin to those widely used by Manteño people, with the addition of Milagro-style elements (Stothert 2001; Aleto and Elwell 1991; Estrada 1957). The presence of ceramic spindle whorls and stone metates as well as net weights imply the exploitation of a broad spectrum of terrestrial, marine and littoral resources. A range of metal objects, including gold and silver ornaments as well as copper money axes are clearly the product of Puná participation in trade networks that enabled exotic materials to be imported from the continental mainland in exchange for perishable coastal commodities such as salt and lime powder that leave little trace in the archaeological record. The Puná chiefdom must have contested control with mainland neighbors, though ultimately all involved would have had a shared incentive in the benefits accruing from reciprocal exchange.

SANTA ELENA PENINSULA

In his survey of the Santa Elena peninsula undertaken in the 1930s Geoffrey Bushnell (1951) first reported Manteño sites near La Libertad. Estrada's surveys (e.g., Estrada 1962) helped place Manteño culture within a stylistic and chronological framework for Ecuadorian coastal cultures. The formal seriation of La Libertad pottery subsequently undertaken by

Paulsen (1970) described the Manteño ceramic assemblage consisting of polished blackware bell-rimmed jars, bowls and pedestal plates along with a range of modeled animal and human forms all with varying combinations of incised, engraved, painted, resist and burnished decoration (see also Stothert 2001).

Coastal ethnic divisions have traditionally been conceived in terms of a northern Manteño confederation centered on central and southern Manabí with southern Manteño or Huancavilca neighbors occupying the Santa Elena Peninsula. There are few direct observations made by the chroniclers about linguistic differences or ethnic affiliations but Cieza de León (1962 [1550]: Chapters XLVI and L) claimed that a distinctive form of facial tattooing was practiced on the coast in towns north of Salango, distinguishing the inhabitants from those to the south (see also Holm 1953). Based on contrasting burial patterns that first became apparent at Loma de los Cangrejitos, Marcos identifies a distinction between the inhabitants of the hilly interior relying predominantly on bottom land farming supplemented by hunting, and enclaves of coastal fisherman exploiting marine resources (Marcos 1986, 1993). This fundamental dichotomy is likely to have played out along the length of the coast because Silva's (1984) scrutiny of the ethnohistoric documents also emphasizes symbiosis between interdependent farming and fishing communities that underpinned Manteño subsistence.

Marcos surmises that the mastery of maritime technology would have conferred a decided advantage in the control of long distance exchange, but claims advanced for the existence of a Huancavilca state appear extravagant (Marcos 1995). Huancavilca ports and inland settlements seem to have formed a distinct ethnic configuration but to have operated nevertheless within the Manteño sphere of influence if not direct control. Three carved wooden posts, on which superimposed pairs of male and female figures are surmounted by a large reptilian, represent rare surviving examples of what must have been a rich tradition of Huancavilca wooden sculpture (Zevallos 1995: 335–355; Alvarez and García 1995; Stothert and Cruz 2001: 59–61).

SOUTHERN MANABI

Early colonial ethnohistoric accounts provide a window on the contact period coastal polities of southern Manabí against which archaeological data on indigenous social and political organization, craft specialization and the long distance trade in exotic materials can be compared. Clues to the political structure among the Manteño señoríos can be gleaned from the town lists. Three important señoríos are readily identified: Jocay, comprising the towns Jaramijo, Camilloa, Cama, with the principal town of Jocay (Manta); Picoaza, with a principal town of the same name, along with Tohalla, Misbay, and Solongo; and Salangome, also with a principal town of the same name, plus Tuzco (Machalilla), Seracapez (Puerto Lopez), and Salango. In each case four towns are mentioned. Silva (1985) draws attention to the fact that this regularity reflects a widespread pattern of dual division and quadripartition in pre-Columbian coastal toponyms, that is borne out by the archaeological data discussed below.

JOCAY (MANTA)

In the early sixteenth century the Italian traveller Benzoni spent several months on the Ecuadorian coast. He claimed that Manta was once one of the principal towns with “more than twenty thousand inhabitants.” He records Manta's fate only twenty years after Pizarro's

landfall: barely fifty inhabitants remained “which is exactly what has happened in all the other towns in the province” (Benzoni 1985 [1547–50]). The impact of diseases and forced labor introduced by the Spanish resulted in a catastrophic population collapse, the rapid disintegration of indigenous social and political organization, and precipitated the abandonment of many settlements and towns (Torres de Mendoza 1868 [1548]; Silva 1984).

No explicit mention is ever made in the early accounts of the Manteño stone seats, but by the nineteenth century these prized objects begin to figure prominently among the archaeological relics and curios acquired by travelers and antiquarians (Figure 26.2).



Figure 26.2. An intact Manteño stone seat displayed in the town square at Montecristi. The seat is probably originally from the hill top ceremonial center of Cerro Jaboncillo, some 20 km to the north. (Colin McEwan)

Speculation as to their origin and function ranged from the serious to the fanciful with a report of the alleged discovery of a circle of seats found atop the hills gaining currency over the years (Gonzalez-Suarez 1890–3:132–5).

In 1906, 1907, and 1908 Marshall H. Saville led a series of expeditions to explore the coastal provinces of Esmeraldas, Manabí and Guayas, sponsored by the George G. Heye foundation. He gave a firsthand account of the extensive archaeological ruins of the Manteño settlement of Jocay before it was completely destroyed by modern Manta's growth. He noted the remains of hundreds of house-sites and mounds that "covered several square miles" to the south of Manta. He surmised that they "must once have reached to the seashore, but ... the present modern town has obliterated all traces of the ancient houses" (Saville 1907:21). One of the largest buildings measured 58 m in length and 12 m wide with a graded ramp at one end sloping toward the sea. He noted the use of adobe bricks in construction, some stone sculptures including human figures that had survived albeit in poor condition, together with much surface ceramic and lithic debitage.

Beginning in 1917 the Ecuadorian archaeologist Jacinto Jijón y Caamaño began fieldwork by mapping some of the larger structures. It was he who first applied the term Manteño to describe the visible evidence for late pre-Hispanic archaeological culture in and around the sea port of Manta (Jijón y Caamaño 1930, 1940–41, 1951). He also introduced the notion of a Manteño "league of merchants" by drawing parallels with the twelfth century confederation of Baltic trading towns known as the Hanseatic League. Apart from the chroniclers' town lists, the identification of Manteño culture and the delineation of Manteño territory are based on the stylistic similarities observed in ceramics recovered from archaeological surface collections and excavations. Emilio Estrada's later excavations at a string of sites along the Ecuadorian coast broadened our knowledge of the extent of Manteño influence north of the Manteño heartland (Estrada 1962: figs. 2, 3). Substantive evidence to show how trading enclaves were secured and administered is still awaited, although reports of Manteño blackwares at Coaque and other coastal sites in northern Manabí certainly hint at these kinds of arrangements (Zeidler 2001).

PICOAZA, CERRO JABONCILLO AND CERRO DE HOJAS

Saville's second expedition in 1907 explored and excavated on the hilltop sites in the vicinity of Picoaza from which the Manteño stone sculpture was said to have come. He devoted most of his efforts to exploration of Cerro Jaboncillo and his published account and unpublished field notes permit an attempt to reconstruct the original architectural contexts and structure by structure provenience for stone seats, stelae and anthropomorphic and zoomorphic sculpture (Figure 26.3). This affirms the essential relatedness of the whole sculptural corpus and underscores the special character of this site, which seems to have entailed seasonal initiation and fertility ceremonies. The distribution of the stone seats as a distinct tradition is confined geographically to what is now part of southern Manabí province (Figure 26.4) and together with the distribution of Manteño ceramics confers an identifiable coherence on the Manteño confederation as a distinct political, economic and ethnic identity.

On nearby flat hill-top of Cerro de Hojas the party found foundations of stone wall structures of different sizes locally known as corrales. "And on the slopes, level terraces have been made, each of which has a house containing one or more rooms and on many slopes the terraces are one below the other, resembling an enormous flight of huge

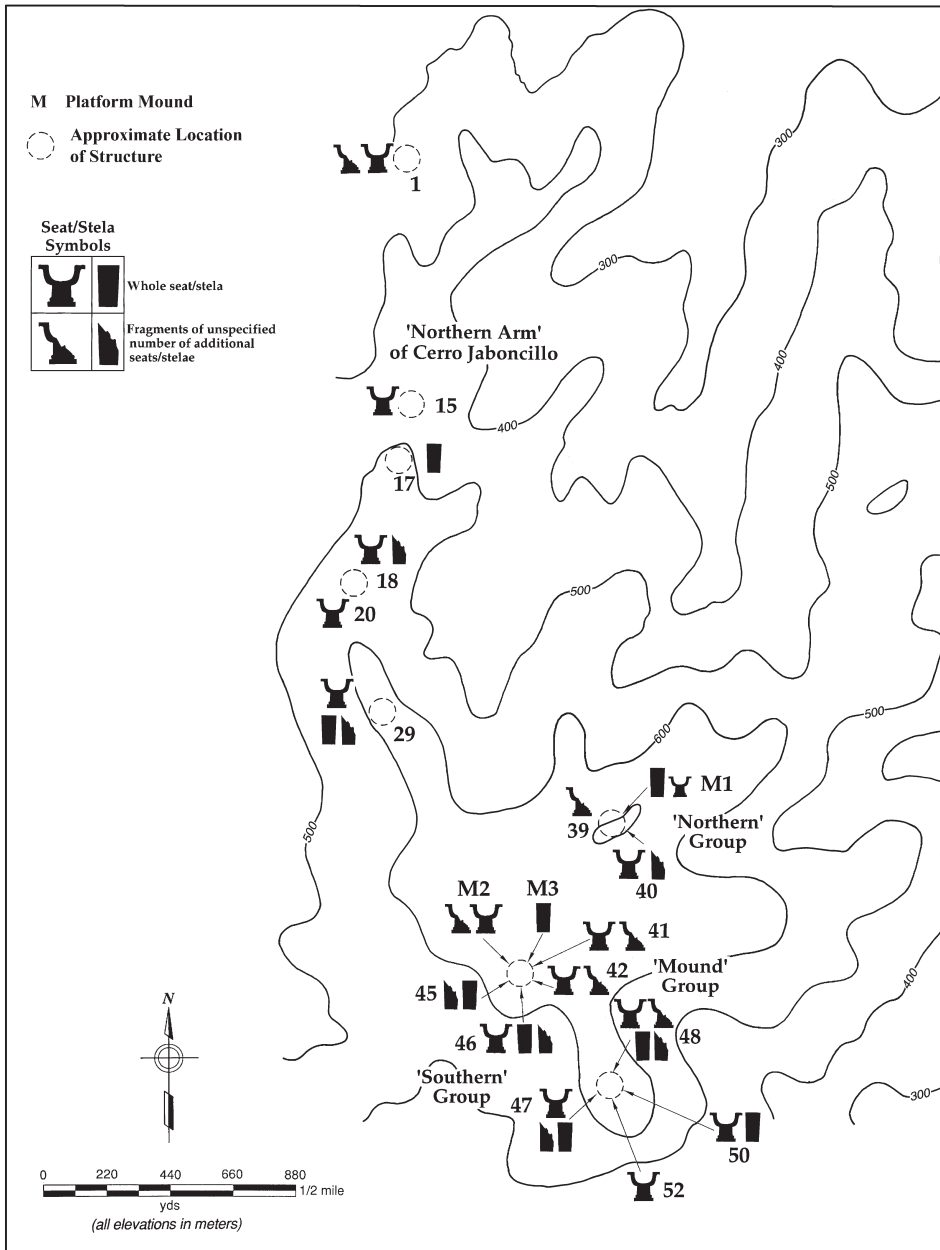


Figure 26.3. Reconstruction of distribution of stone seats and stelae on Cerro Jaboncillo based on published descriptions and unpublished fieldnotes of Mashall H. Saville. (Colin McEwan)

steps” (Saville 1907: 21). The largest structure measured 49 m long and 12.5 m wide; there was no evidence of interior walls, it being a single room, with the northern end open. “In these same houses were also found stone columns, figures of men, and certain curious sculptures” (Saville 1907: 22). Between the northern slopes of Cerro Bravo and the northwestern base of Cerro de Hojas, Saville reports finding house sites with thousands of

by some twenty indigenous sailors. The raft was constructed of large balsa logs lashed together with hemp ropes upon which a cane superstructure was erected to house both crew and cargo. These and the cotton sails, hemp rigging and large stone anchors are corroborated by illustrations in other colonial documents that offer ample testimony to native mercantile skills. This craft boasted a wealth of trading goods including:

“many objects of silver and gold for personal ornament to barter with those with whom they were going to trade, among which were crowns and diadems and belts and bracelets and armor for the legs and breastplates and tweezers and bells and strings and masses of beads and mirrors adorned with the said silver and cups and other drinking vessels; they (also) brought many textiles of wool and cloth and shirts and tunics and capes and many other garments all of them finely woven with rich detail, and of colors such as red and crimson and blue and yellow and with all the other colors and varied craftwork and figures of birds and animals and fish and trees” (Samano-Xerez 1937 [1528]: 66–8).

The description gives an invaluable snapshot into social, political and economic relationships that help animate the archaeological record and give a sense of how significant this far-reaching trade was in inter-regional exchange (Marcos 1978).

The account also describes small weights used with a balance to measure gold, emerald and quartz beads (among strings of other valuable materials) and explicitly states that “they brought all this to trade for some sea shells from which they make colored beads like coral and white such that they came with nearly the whole vessel laden with these.” The crew seem to have been trading emissaries for a powerful coastal confederation that exercised control over a string of ports and towns.

One of the rare descriptions of political arrangements among the coastal polities is embedded in the list of towns said to have been ruled by the Lord of Salangome.

“Those three Indians that I mentioned who were captured on the vessel and taken to the captains quickly learned our language. It seems that they were from a land and people known as Salangome ... the people in that land are of better quality and bearing than Indians because they are of better appearance and color and very intelligent and they have a language like Arabic and evidently they rule over the Indians that I mentioned from Tacamez and of the Bay of San Mateo and of Nancabez and of Tovirisimi and Conilope and Papagayos and Tolona and Quisirimos and Coaque and Tonconjes and Aranypaxaos and Pintagua and Caralobes, Xamaxejos, Carne and Amotopce, Docoa, all towns of the lowlands that have been discovered along the coast and of all that other part of the coast in the polity of Salangome where there are four towns together under the rule of one Lord which are the said Salangome and Tusco and Seracapez and Salango”.

Presley Norton (1982) originally surmised that this list of towns all referred to coastal settlements and that Salangome itself was a port. Fieldwork and mapping in the intervening years tend to favor an alternate reading of the text proposed by Silva (1985), which places Salangome as the principal town at the inland site of Agua Blanca.

Investigations by Ann Mester (1990) at the site of Los Frailes/Machalilla (Tusco) have helped describe a Manteño ceramic assemblage comprising utilitarian vessels including flanged ollas, necked jars, griddle plates and graters on annular bases and complemented by serving wares that include bowls, pedestal plates and bell-rim jars (Mester 1990:90–155). Mester’s excavations have also identified a mother-of-pearl workshop at Los Frailes, the first substantial evidence for specialized production of this material as part of the long-distance trade in sumptuary goods. Additional evidence for the same kind of specialization in worked marine shell also comes from Puerto

Lopez (Currie 1995), and copper objects recovered from all four Señorío settlements support the ethnohistoric account of the kinds of items that were traded in return. The better-known thorny oyster (*Spondylus*) was an early and important component of this trade and was surely the prized shell being carried on the captured native vessel (see above). Excavations conducted on Isla de la Plata in 1978 uncovered a cache of many hundreds of marine shells as well as Guayaquil phase figurines and Chimu and Inca material which underline the role that maritime trade and exchange played in the power and influence of the Manteño coastal señoríos. Other goods that are less archaeologically visible probably include salt, lime, coca leaves and cotton along with a range of foodstuffs and other perishable commodities exchanged for prized obsidian, copper, silver and gold.

AGUA BLANCA: ARCHITECTURAL CLUES TO MANTENO SOCIAL AND POLITICAL ORGANISATION

Agua Blanca is strategically located some 8 km inland, up the Buenavista River Valley at a point where it narrows to form a deep gorge cutting through the northern Colonche Hills. The stone wall foundations of several hundred Manteño structures are visible today, grouped in complexes that are dispersed across an area of roughly 4 km². Suitable level terrain for building is restricted and, following the dictates of the valley topography, the favored locations for permanent settlement are the lower terraces and spurs adjacent to and above the floodplain. The extensive preservation and visibility of the architectural constructions at Agua Blanca are rare for the northern Andes and offer an exceptional opportunity to recover a comprehensive settlement plan along with insights into the internal organization of a non-Incaic, pre-Columbian Ecuadorian town.

The nucleus of the site is formed of complexes of large public buildings whose walls still stand 1 to 2 m high in places. Fragments of sculpted stone seats are found in association with many of these and also at outlying satellite settlements. The architectural complexes with seats (Figure 26.5) all lie within a radius of about 2 km of a modified hilltop (MIV-C4-1) that forms a natural vantage point and conceptual center for the site, being visible from afar both up and down valley. This “inter-visibility” between outlying complexes with seats and the center of the site seems highly intentional and is one of three distinct but inter-related patterns of radially expressed in the organization of the architectural complexes at Agua Blanca. A second radial pattern is apparent in the way that the long axes of the structures on the modified hilltop (MIV-C4-1) and those adjacent to it converge at a point 3 km north on the visible horizon. This establishes a relation between the center of the site, the visible horizon, and significant but more distant sites such as Cerro Jaboncillo that lie in this direction. A third architectural expression of the radial organization of space is apparent in the discovery of the spoke-like arrangement of structures clustered in the site’s northwest quadrant at the base of the modified hilltop. When extrapolated toward the western horizon, the western border of this quadrant aligns with Isla de La Plata while the eastern border, if projected northeast beyond the horizon aligns with Cerro Jaboncillo. Isla de La Plata and Cerro Jaboncillo were two important sites in Manteño ritual geography.

Elsewhere at the site the largest buildings and their ancillary structures show repeated patterns in their preferred alignments and ordered arrangements. Pairing of structures is common, and groups of four adjacent structures are found in varying combinations. The

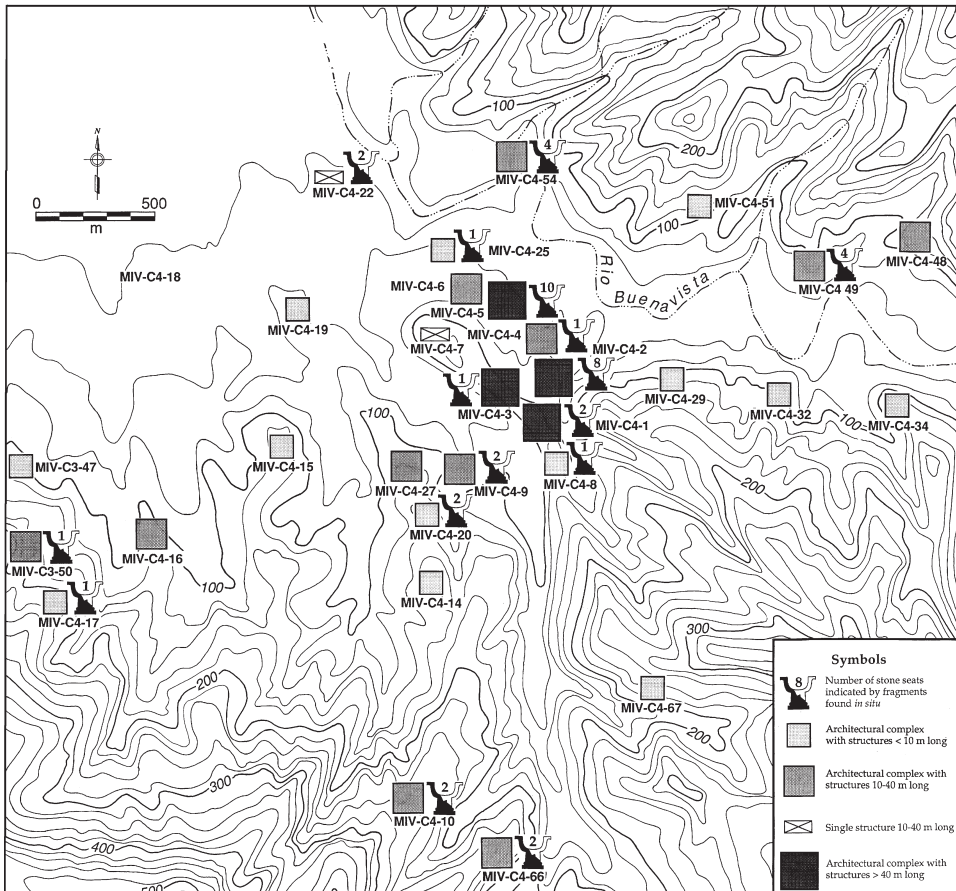


Figure 26.5. Distribution of architectural complexes with stone seats at Agua Blanca. (Colin McEwan)

largest building at the site (MIV-C4-5.1) measures 50 m in length and 12 m in width, comparable with other large Manteño buildings found at Manta, Cerro de Hojas, and Puerto Lopez. The largest concentration of seats at the site is found within this building, perhaps as many as twenty in total and probably originally arranged along the walls, facing inward. In close proximity to this building lie two pairs of smaller structures. The two sets stand at right angles to each other facing onto a shared open space and, aligned as they are on contrasting axes, may be read as representing contrasting or “opposed” categories perhaps expressing moiety divisions. Each pair comprises adjacent structures, one slightly larger than the other, with their long axes approximately parallel. The two pairs contrast in another sense, since one has an internal partition while the other pair shows no evidence of this. Such methodical ordering of architectural space points is a visible expression of underlying principles of hierarchical ranking. Excavations of the interior of MIV-C4-2.2 have revealed a row of stone seats running parallel to the east wall of this structure which originally numbered eight in all —suggestive of a further expression of the social hierarchy. The pattern of pairing is also found among many of the satellite residential clusters suggesting that these were pervasive principles of social organization governing different

levels of Manteño society. A nested hierarchy of complementary, opposed social divisions has been identified in the ethnohistoric documents for north coastal Peru (e.g., Netherly 1977) and occurs widely elsewhere in the Andes.

Two important alignments embodied in the architectural fabric of Agua Blanca are derived from horizon-based solstitial observations. The long axis of Structure MIV-C4-5.1 runs northwest/southeast and its entrance faces southeast. A bearing taken at 90° to the front wall footings and projected east gives an azimuth that coincides with the December solstice sunrise on the eastern horizon. The December “turning point” in the sun’s annual journey along the eastern horizon coincides with the important dry to wet season transition in southern Manabi. A similar, if less pronounced, transition occurs around the June solstice. The temporal opposition revolving around the solstices may have been reflected in the timing of key *seating* rituals (Figures 26.2, 26.3, 26.4, 26.5, 26.6) as it is elsewhere in the Andes and archaeological figurines from various coastal cultures show that ritual consumption of coca is likely to have occurred at such events. The vitrified walls of lime kilns located in gullies in and around Agua Blanca and reported from other sites in southern Manabi, indicate that they were used to achieve the high temperatures required to convert marine shells into the much sought after powdered lime that was ingested with coca. Powdered lime is likely to have been an important, albeit almost archaeologically invisible, trade commodity.



Figure 26.6. Ceramic incensario showing a naked male with large ear spools seated in a frontal pose on a stool with a stepped base. (photo courtesy of the Museo Antropológico y de Arte Contemporáneo, Guayaquil)

THE INCA INCURSION

There was undoubtedly a long history of contact and exchange between coastal Ecuador and north coastal Peru prior to the Inca incursion, although direct evidence for this is elusive. The documentary sources tell of two Inca kings, Topa Inca Yupanqui and his son Guaynacapac, who waged successive military campaigns north of Tumbes aimed at bringing Puná, Huancavilca, and Manteño territories under effective Inca control. Sporadic finds of Inca artifacts lend some substance to the accounts of the Inca presence on Isla Puná.

Major Spanish accounts, such as by Pedro Cieza de León (1962 [1550]) and Cabello Balboa (1951 [1586]), concur that an effective Inca conquest and incorporation of the coastal señoríos into the Inca realm was never fully realized either by Topa Inca Yupanqui or Guaynacapac. The duration of the Inca presence was certainly brief, although the well-known find of Inca burials on La Plata Island reported late last century by George A. Dorsey testify to its significance within Inca sacred and political geography (McEwan and Silva 1989; McEwan and van de Guchte 1992). Additional sporadic Inca finds have come from Agua Blanca (McEwan and Silva 1989; McEwan 2004) and the Santa Elena Peninsula (Stothert and Cruz 2001:51). These data lend credence to the ethnohistoric accounts of two military invasions, which, although failing to secure permanent control of the coastal polities, perhaps succeeded in creating a buffer zone north of Tumbes, over which the Incas maintained indirect control and certain rights of access to assure procurement of the vital and much valued *Spondylus*.

CONCLUSION

The late pre-Hispanic polities of coastal Ecuador applied an impressive array of technologies to realize the productive potential of diverse coastal habitats. These include the raised field systems of the riverine lowlands, the albarradas (earthen structures to capture water) and terrace systems used to conserve and manage the drier areas of the Santa Elena Peninsula and southern Manabí, and the mastery of deep-sea balsa raft maritime expertise that enhanced the exploitation of rich marine resources and spurred the export of desirable commodities in exchange for a range of exotic materials imported from afar. The resourcefulness of coastal cultures was severely tested by long-term environmental stresses and periodic natural catastrophes but the fact that they survived and prospered is testimony to their adaptive capacities and resilience.

While the expansive state formations that characterize the Central Andes are not found north of the Gulf of Guayaquil, nonetheless the Manteño hegemony offers demonstrable evidence of elaborately structured social hierarchy (Figure 26.6) and regional political integration. This ensured effective articulation between coastal ports and trading towns along the length of the Pacific coast and secured their role as key nodes in the balsa-raft trade, which was instrumental in facilitating novel forms of contact and exchange over huge distances—north as far as Acapulco and well south along the Peruvian coast.

ACKNOWLEDGMENTS We are particularly grateful to Karen Stothert for generously sharing both published and unpublished material and for timely and pertinent comments on an earlier draft. Jim Zeidler kindly responded to requests for help with information and references. Stephen Crummy, Steve Holland and Mike Row all helped with the graphics illustrating this chapter; their skill is much appreciated.

REFERENCES

- Acuña, Freddy, 1996, Arqueología del sitio Bermejo del Frente. *Boletín Arqueológico* 5: 34–53. ARAS y Avances de Investigación, No. 6. Centro de Estudios Arqueológicos y Antropológicos de la Escuela Superior Politécnica del Litoral, Guayaquil.
- Alvarez, S., 1999, *De Huancavilcas a Comuneros: Relaciones Interetnias en la Pensinsula Santa Elena – Ecuador*. Ediciones Abya-Yala, Quito.
- Benzoni, Girolamo, 1985 [1550], *La Historia del Nuevo Mundo. (Relatos de Su Viaje por el Ecuador, 1547 – 1550)*. Guayaquil.
- Bird, Robert McK., 1987, A postulated tsunami and its effects on cultural development in the Peruvian Early Horizon. *American Antiquity* 52: 285–303.
- Bouchard, Jean F., 1995, Arqueología de la costa del Pacífico nor-equatorial. Evaluación preliminar de los cambios ocurridos en los últimos decenios. In *Primer Encuentro de Investigadores de la Costa Ecuatoriana en Europa*, edited by Aurelio Alvarez, Silvia G. Alvarez, Carmen Fauría, and Jorge G. Marcos, pp. 67–95. Ediciones Abya-Yala, Quito.
- Buchwald, O. V., 1917, Tolas Ecuatorianas. *Physis* 1.
- , 1918, Notas acerca de la arqueología del Guaya. *Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos* 18.
- Burger, Richard L., 2003, Conclusions: cultures of the Ecuadorian Formative in their Andean contexts. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 465–486. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Bushnell, G. H. S., 1951, *The Archaeology of the Santa Elena Peninsula in Southwest Ecuador*. Occasional Papers of the Cambridge University Museum of Archaeology and Ethnology, No. 1. Cambridge University Press, Cambridge.
- Buy, Jozef E. and Michael Muse, 1987, Arqueología de asentamientos asociados a los campos elevados de Peñón del Río, Guayas, Ecuador. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson, and Gregory Knapp, pp. 225–247. BAR International Series, No. 359. Oxford.
- Cabello Balboa, Miguel, 1951 [1586], *Miscelánea Antártica*, edited by Luis E. Valcarcel. Instituto de Etnología, Universidad Nacional Mayor de San Marcos, Lima.
- Cardenas-Arroyo, Felipe, 1996, Complex societies in pre-Hispanic Colombia: the Tairona as case study. In *Chieftains, Power and Trade: Regional Interaction in the Intermediate Area of the Americas*, edited by Carl H. Langebaek and Felipe Cardenas-Arroyo, pp. 63–74. Departamento de Antropología, Universidad de los Andes, Bogotá, Colombia.
- Carney, Heath J., Michael W. Binford, Alan L. Kolata, Ruben R. Marin and Charles R. Goldman, 1993, Nutrient and sediment retention in Andean raised-field agriculture. *Nature* 364 (8 July): 131–133.
- Cieza de León, Pedro, 1962 [1550], *La Crónica del Perú*. Colección Austral, No. 507. Madrid.
- Cummins, Tom, 1992, Tradition in Ecuadorian pre-Hispanic art. The ceramics of Chorrera and Jama-Coaque. In *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*, edited by Francisco Valdez and Diego Veintimilla, pp. 63–81. Dinediciones, Quito.
- , Julio Burgos Cabrera, and Carlos Mora Hoyos, 1996, Arte prehispánico del Ecuador. Huellas del pasado: los sellos de Jama-Coaque. *Miscelanea Antropológica Ecuatoriana Serie Monográfica*, No. 11. Banco Central del Ecuador, Guayaquil.
- Currie, Elizabeth J., 1995, Archaeology, ethnohistory and exchange along the coast of Ecuador. *Antiquity* 69: 511–526.
- DeBoer, Warren, *Traces Behind the Esmeraldas Shore: Prehistory of the Santiago-Cayapas Region, Ecuador*. University of Alabama Press, Tuscaloosa.
- Delgado-Espinoza, Florencio, 1997, *Ethnoarchaeological Research at the Tsachilla Community of Congoma, Santo Domingo de los Colorados, Ecuador*. Center for Latin American Studies University of Pittsburgh.
- , 1997, Organización política en la Baja Cuenca del Guayas, Ecuador durante el periodo de Integración (ca. 500 D.C. – Contacto Español). *Símpoio “Sociedades Complejas en Latinoamérica.” 49avo Congreso Internacional de Americanistas*. Quito, Ecuador.
- , 2002, Intensive Agriculture and Political Economy of the Yaguachi Chiefdom of Lower Guayas Basin, Coastal Ecuador. Unpublished Ph.D. dissertation. Department of Anthropology, University of Pittsburgh, Pittsburgh.
- , 2005, Organización política en la baja cuenca del Río Guayas, Ecuador, durante el periodo de integración (ca. 500 D.C. – contacto Español). *Cuadernos de Investigación* 6: 255–276.

- , 2006, Organización de la producción de los camellones de la baja cuenca del Guayas durante la ocupación de los Chonos. *Agricultura Ancestral: Albarradas y Camellones*, edited by Francisco Valdez. IRD, Abya-Yala, Quito.
- Denevan, William M. and Kent Mathewson, 1983, Preliminary results of the Samborondón Raised-Field Project, Guayas Basin, Ecuador. In *Drained Field Agriculture in Central and South America*, edited by J. P. Darch, pp. 167–181. British Archaeological Reports, International Series, 189. Oxford.
- Dominguez Saldoval, Victoria, 1990 [1986], Análisis Cerámico de la Cultura Milagro Recuperado de un Contexto Cerrado (R37) en el Sitio Arqueológico Peñón del Río (OG-GQ-DU-001). Tesis de Grado: Licenciatura en Arqueología. Colección Peñón del Río, Escuela Superior Politécnica del Litoral, Escuela de Arqueología, Guayaquil.
- Donnan, Christopher B., 1990, An assessment of the validity of the Naymlap dynasty. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 243–274. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Dorsey, George A., 1901, *Archaeological Investigations on the Island of La Plata, Ecuador*. Field Columbian Museum, Publication 56. Chicago.
- Drennan, Robert D., 1996, Betwixt and between in the Intermediate Area. *Journal of Archaeological Research* 4 (2): 95–132.
- and Carlos A. Uribe (eds.), 1987, *Chiefdoms in the Americas*. University Press of America, Lanham, MD.
- Erickson, Clark L., 1993, The social organization of pre-Hispanic raised field agriculture in the Lake Titicaca basin. In *Research in Economic Anthropology: Economic Aspects of Water Management in the Pre-Hispanic New World*, edited by Vernon L. Scarborough and Barry L. Isaac, pp. 369–426. JAI Press, Greenwich, CT.
- Espinoza Soriano, W., 1988, El Reino de los Chonos al este de Guayaquil (siglos XV – XVII): test de la arqueología y la etnohistoria. *Etnohistoria Ecuatoriana: Estudios y Documentos*, pp. 125 – 192. Ediciones Abya-Yala, Quito.
- Estete, Miguel de, 1918 [1535], Noticia del Peru. *Boletín de la Sociedad Ecuatoriana de Antropología* 1 (3). Quito.
- Estrada, Emilio, 1957, *Prehistoria de Manabí*. Museo Victor Emilio Estrada, Publicación 4. Guayaquil.
- , 1957, *Últimas Civilizaciones Pre-Históricas de la Cuenca del Río Guayas*. Publicación No. 2 del Museo Victor Emilio Estrada, Guayaquil. [Publicaciones del Archivo Histórico del Guayas, Reimpresiones, Guayaquil, 1979.]
- , 1962, *Arqueología de Manabí Central*. Museo Victor Emilio Estrada, Publicación 7. Guayaquil.
- Estrada, Victor Emilio, 1954, *Ensayo Preliminar Sobre Arqueología del Milagro*. Guayaquil.
- , 1957, Cronología de la Cuenca del Guayas y sumario de las características Milagro-Quevedo. *Cuadernos de Historia y Arqueología* Año VII – Vol. VII, pp. 232 – 239. Publicación de la Casa de la Cultura Ecuatoriana, Núcleo del Guayas.
- Evans, Clifford and Betty J. Meggers, 1954, Informe preliminar sobre las investigaciones arqueológicas realizadas en la cuenca del Guayas, Ecuador. *Cuadernos de Historia y Arqueología* 12: 308 – 347.
- and Betty J. Meggers 1961, Cronología relativa y absoluta en la costa del Ecuador. *Cuadernos de Historia y Arqueología*, Año XI, Vol. I, No. 27. Guayaquil.
- Guillaume-Gentil, Nicolás, 1996, Patrones de asentamiento prehispánico en la cuenca norte del Río Guayas, Ecuador. *Separata de Beitrage zur allgemeinen und vergleichenden archaologie* Band 16 (Fundación Suiza-Liechtenstein para Investigaciones Arqueológicas en el Exterior, FSLA), pp. 263–300.
- , 1998, Patrones de asentamiento en el piedemonte andino, en la alta cuenca del Río Guayas: Proyecto La Cadena-Quevedo-La Maná, Ecuador. In *El Área Septentrional Andina: Arqueología y Etnohistoria*, edited by M. Guinea, pp. 149–196. Colección Abya-Yala 59. Abya-Yala, Quito.
- , K. Ramírez, F. Mejía, R. Chacón, Z. Rodríguez and A. Palacios, 1999, *Proyecto La Cadena-Quevedo-La Maná: Investigaciones Arqueológicas en la Cuenca Norte del Guayas, Ecuador: Avances del 1998 y 1999*. Schweizerisch-Liechtensteinische Stiftung für Archäologische Forschungen im Ausland, Zurich. (Swiss-Liechtenstein Foundation for Archaeological Research Abroad-SLSA.)
- , Katherine Ramirez, Fernando Mejia, Rosalía Chacón, Andréa Palacios y Zaida Rodríguez, 2000, Proyecto la cadena-Quevedo-la Mana. Investigaciones arqueológicas en la cuenca norte del Guayas, Ecuador. *Jahresberichte*: 57.
- , Katherine Ramirez, Yann Graeber, Fernando Mejia, Rosalba Chacon, Andreas Palacios y Zaida Rodríguez, 2001, Proyecto Arqueológico La Cadena-Quevedo-La Maná: Avances de la Temporada 2000 – 2001. *Jahresbericht* (2000): 35 – 56.
- Guinea, Mercedes, 1995, Diferentes mecanismos de articulación hombre-entorno en la costa norte del Ecuador: La desembocadura del Esmeraldas del principio de nuestra era al año 1527. In *Primer Encuentro de*

- Investigadores de la Costa Ecuatoriana en Europa*, edited by Aurelio Alvarez, Silvia G. Alvarez, Carmen Fauria and Jorge G. Marcos, pp. 47–66. Ediciones Abya-Yala, Quito.
- Holm, Olaf, 1953, *El Tatuaje entre los Aborígenes Prehispánicos de la Costa Ecuatoriana*. Cuadernos de Historia y Arqueología 3 (7–8): 56–92. Guayaquil.
- , 1992, *Cultura Manteño-Huancavilca*. Museo del Banco Central, Guayaquil.
- Hosler, Dorothy, 1988, Ancient West Mexican metallurgy: South and Central American origins and West Mexican transformations. *American Anthropologist* 90: 832–855.
- , 1994, *The Sounds and Colors of Power. The Sacred Metallurgical Technology of Ancient West Mexico*. MIT Press, Cambridge, MA.
- , Heather Lechtman, and Olaf Holm, 1990, *Axe-Monies and Their Relatives*. Studies in Pre-Columbian Art and Archaeology, 32. Dumbarton Oaks Research Library and Collection, Washington D.C.
- Instituto Nacional de Patrimonio Cultural, 2002, *Informes sobre la Arqueología de Santiago de Guayaquil*, edited by J. Chancay. Instituto Nacional de Patrimonio Cultural, Subdirección Regional del Litoral, Guayaquil.
- Janusek, John W. and Alan L. Kolata, 2004, Top-down or bottom-up: rural settlement and raised field agriculture in the Lake Titicaca basin, Bolivia. *Journal of Anthropological Archaeology* 23: 404–430.
- Jijón y Caamaño, Jacinto, [1952] 1997, *Antropología Prehispánica del Ecuador*. Pontificia Universidad Católica del Ecuador, Quito.
- Lavallée, Daniele, 1992, Preface. In *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*, edited by Francisco Valdez and Diego Veintimilla, pp. 7–11. Dinediciones, Quito.
- Lenz-Vollan, B. a. M. V., 1986, Ostras, perlas y purpura. Su uso durante la época colonial hasta comienzos de la Independencia en el Ecuador Occidental. *Miscelanea Antropológica Ecuatoriana*, No. 6, pp. 49–70. *Boletín de los Museos del Banco Central del Ecuador*.
- McEwan, Colin, 1992, Sillas de poder: evolución sociocultural en Manabí, costa central del Ecuador. In *500 Años de Ocupación – Parque Nacional Machalilla*, edited by Presley Norton. Ediciones Abya-Yala, Quito, Ecuador.
- , 2004, *And the Sun Sits in His Seat: Creating Social Order in Andean Culture*. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- and Maria-Isabel Silva, 1989, ¿Qué fueron a hacer los Incas en la costa central del Ecuador? In *Relaciones Interculturales en el Área Ecuatorial del Pacífico durante la Época Precolombina*, edited by J. F. Bouchard and M. Guinea. British Archaeological Reports, International Series, No. 503.
- and Maria-Isabel Silva, 2000, La presencia Inca en la costa central de Ecuador y en la Isla de la Plata. In *Compendio de Investigaciones en el Parque Nacional Machalilla*, edited by M. Iturralde and C. Josse. Corporación CDC and Fundación Natura, Quito, Ecuador.
- and Maarten van de Guchte, 1992, Ancestral time and sacred space in Inca state ritual. In *The Ancient Americas: Art from Sacred Landscapes*, edited by Richard F. Townsend, pp. 359–371. The Art Institute of Chicago.
- Marcos, Jorge G., 1977–78, Cruising to Acapulco and back with the Thorny Oyster Set. *Journal of the Steward Anthropological Society* 9 (1–2): 99–132.
- (ed.), 1986, *Arqueología de la Costa Ecuatoriana: Nuevos Enfoques*. Biblioteca Ecuatoriana de Arqueología 1. Escuela Politécnica del Litoral y Corporación Editora Nacional, Quito.
- , 1987, Campos elevados de la cuenca del Guayas, Ecuador: El Proyecto Peñón del Río. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson and Gregory Knapp, pp. 217–224. BAR International Series, No. 359. Oxford.
- , 1993, *Ancient Ecuador, Coastal Societies of the Northern Andean Region 300 B.C. – 1500 A.D.* Banco Del Pacífico, Museo Arqueológico, Guayaquil.
- , 1995, El mullo y el pututo: la articulación de la ideología y el tráfico a larga distancia en la formación del estado Huancavilca. In *Primer Encuentro de Investigadores de la Costa Ecuatoriana en Europa: Arqueología-Etnohistoria, Antropología Sociocultural*, edited by A. Alvarez, S. Alvarez, C. Fauria and J. Marcos, pp. 97–142, 483–486. Ediciones Abya-Yala, Quito.
- and Presley Norton, 1981, Interpretación sobre la arqueología de la Isla de la Plata. *Miscelánea Antropológica Ecuatoriana* 1:136–154.
- and P. Norton, 1984, From the yungas of Chinchay Suyu to Cuzco: the role of La Plata Island in the *Spondylus* trade. In *Social and Economic Organization in the Pre-Hispanic Andes*, edited by David L. Browman et al., pp. 7–21. Proceedings of the 44th International Congress of Americanists, Manchester, 1982. British Archaeological Reports, International Series, No. 194. Oxford.
- Martínez, V., 1987, Campos elevados al norte del sitio arqueológico Penon del Río. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson and Gregory Knapp. BAR International Series, Oxford.

- Mathewson, Kent, 1987, Estimating labor inputs for the Guayas raised fields: initial considerations. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson and Gregory Knapp. BAR International Series, Oxford.
- , 1987, *Landscape Change and Cultural Persistence in the Guayas Wetlands, Ecuador*. Department of Geography, University of Wisconsin, Madison.
- , 1992, Tropical riverline regions: locating the “people without history.” *Journal of the Steward Anthropological Society* 20 (Numbers 1 and 2).
- Meggers, Betty J., 1966, *Ecuador*. Thames and Hudson, London.
- Mester, Ann M., 1985, Un taller Manteño de madre perla del sitio Los Frailes, Manabí, Ecuador. *Antropológica Ecuatoriana* 5: 101–111. Boletín de los Museos del Banco Central del Ecuador, Quito.
- , 1990, Marine shell consumption at a Manteño coastal site, Los Frailes, Manabí Province, Ecuador. In *Pre-Hispanic Settlement and Subsistence in Southwest Ecuador*, edited by Alfred H. Siemens and Patricia J. Netherly. BAR International Series, Oxford.
- , 1990, The Pearl Divers of Los Frailes: Archaeological and Ethnohistorical Explorations of Sumptuary Good Trade and Cosmology in the North and Central Andes. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- Mosquera, Marcela, 1989, *Geología Arqueológica de la Zona de Agua Blanca, Puerto Lopez, Provincia de Manabí*. Tesis de Grado, Escuela Politécnica Nacional, Quito.
- Muse, Michael, 1989, *Cronología Regional y Relaciones de Territorialidad en la Región Oeste del Área Septentrional Andina, Siglo XVI. Relaciones Interculturales en el Área Ecuatorial del Pacífico durante la Época Precolombina*. British Archaeological Reports, Nos. 187 – 199. Oxford.
- , 1991, Products and politics of a Milagro entrepot: Peñon del Río, Guayas Basin, Ecuador. *Research in Economic Anthropology* 13: 269–323.
- and Fausto Quintero, 1987, Experimentos de reactivación de los campos elevados del Penon del Río, Guayas, Ecuador. In *Pre-Hispanic Agricultural Fields in the Andean Region*, edited by William M. Denevan, Kent Mathewson and Gregory Knapp, pp. 249 – 268. BAR International Series, Oxford.
- Norton, Presley, 1982, *Cambio y Continuidad en Salango*. Museo Arqueológico del Banco del Pacífico, Guayaquil.
- (ed.), 1992, *500 Años de Ocupación – Parque Nacional Machalilla*. Ediciones Abya-Yala, Quito.
- , Richard Lunnis and Nigel Nayling, 1983, Excavaciones en Salango, provincia de Manabí, Ecuador. *Miscelánea Antropológica Ecuatoriana* 3: 9–80.
- Paulsen, Allison C., A Chronology of Guangala and Libertad Ceramics of the Santa Elena Peninsula in South Coastal Ecuador. Ph.D. dissertation. Department of Anthropology, Columbia University, New York.
- Parducci Z., Resfa and Ibrahim Parducci Z., 1970, Sitio arqueológico al norte de la ciudad: Fase Guayaquil. *Cuadernos de Historia y Arqueología* 37: 57–154.
- and Ibrahim Parducci Z., 1973, Artefactos de piedra, concha y hueso: Fase Guayaquil. *Cuadernos de Historia y Arqueología* 39: 97–182.
- and Ibrahim Parducci Z., 1975, Vasijas y elementos diagnósticos: Fase Guayaquil. *Cuadernos de Historia y Arqueología* 42: 155–284.
- Parsons, Jeffrey, 1969, Ridged fields in the Rio Guayas Valley, Ecuador. *American Antiquity* 34: 76 – 80.
- and Roy Shlemon, 1982, Nuevo informe sobre los campos elevados prehistóricos de la Cuenca del Guayas, Ecuador. *Miscelánea Antropológica Ecuatoriana* 2: 31–37.
- Pérez-Pimentel, R., 1961, Los Cayache – Chonana: principales, caciques y señores naturales de Daule. *Cuadernos de Historia y Arqueología* 27: 91–104.
- Piana, L. and Hanz Marotzke, 1997, *Unidad Cultural en el Litoral Meridional Ecuatoriano*. Centro de Difusión y Publicaciones de la ESPOL.
- Pizarro, Francisco, 1527 [1844], Relación de los primeros descubrimientos de Francisco Pizarro y Diego de Almagro. In *Colección de los Viajes y Descubrimientos que Hicieron por Mar los Españoles desde Fines del siglo XV*. 5 vols, edited by Martín Fernández de Navarrete, pp. 193–201. Madrid.
- Pizarro, Pedro, 1968 [1571], Relación del Descubimiento y Conquista de los Reinos del Perú. In *Biblioteca Peruana*, Primera Serie, vol. 1, pp. 439–586. Ed. La Confianza, Lima.
- Porras, Pedro, 1983, *Arqueología: Palenque, Los Ríos y La Ponga, Guayas*. Centro de Investigaciones Arqueológicas (PUCE).
- Ramírez, K., 1996, *Arqueología del Sitio La Cadena-Quevado: Análisis del Componente Cerámico de la Tola 5*. Centro de Estudios Arqueológicos y Antropológicos. ESPOL, Guayaquil.
- Reindel, Markus and Nicolás Guillaume-Gentil, 1955, El Proyecto Arqueológico La Cadena: estudios sobre la secuencia cultural de la cuenca del Río Guayas. In *Primer Encuentro de los Investigadores de la Costa*

- Ecuadoriana en Europa*, Silvia A. G. Álvarez, Carmen Jauría and Jorge Marcos, pp. 143 – 178. Ediciones Abya-Yala, Quito.
- Salomon, Frank, 1986, *Native Lords of Quito in the Age of the Incas: The Political Economy of North-Andean Chiefdoms*. Cambridge University Press, Cambridge.
- Sanchez, A., 1995, *Informe Final. Prospección Arqueológica de Guayaquil: Fase I, Área Noroeste*. Instituto Nacional de Patrimonio Cultural (INPC), Dirección Regional del Litoral, Guayaquil.
- , Franklin Fuentes y Telmo López, 1996, Los Antiguos Habitantes de Guayaquil. *Boletín Arqueológico 5 – Avances de Investigación 6*: 124 – 140.
- Sarmiento de Gamboa, Pedro, 1943 [1572], *Historia de los Incas*. Colección Hórreo. Emecé Editores, S.A., Buenos Aires.
- Saville, Marshall H., 1907, *The Antiquities of Manabí, Ecuador: Preliminary Report*. The Heye Foundation, Contributions to South American Archaeology, New York.
- , 1910, *The Antiquities of Manabí, Ecuador: Final Report*. The Heye Foundation, Contributions to South American Archaeology, 2. New York.
- Schavelzón, Daniel, 1981, *Arqueología y Arquitectura del Ecuador Prehispánico*, edited by Francisco Valdez and Diego Veintimilla. Universidad Nacional Autónoma de México, México, D.F.
- Silva, Maria-Isabel, 1983, Toponymic reconstruction as a basis for analysing social, economic and political relationships among contact period settlements on the central coast of Ecuador. Paper presented at the 11th Annual Midwest Conference on Andean and Amazonian Archaeology and Ethnohistory. Bloomington, IN.
- , 1984, Pescadores y Agricultores de la Costa Central del Ecuador: Un Modelo Socio-económico de Asentamientos Precolombinos. MA thesis. Department of Anthropology, University of Illinois, Urbana-Champaign.
- , 1985, Dual division, quadripartition and hierarchical organization among the Manteño polities of late pre-Columbian coastal Ecuador. Paper presented at the International Congress of Americanists, Bogota, July 1985.
- Stemper, David, 1993, *La Persistencia de los Cacicazgos Prehispánicos en el Río Daule, Costa del Ecuador*. University of Pittsburg Memoirs in Latin American Archaeology, No. 7 and Ediciones Libri Mundi Enrique Grosse-Luemern, Quito.
- Stothert, Karen E., 2001, Manteño. In *Encyclopedia of Prehistory. Volume 5: Middle America*, edited by Peter N. Peregrine and Melvin Ember. Kluwer Academic/Plenum Publishers, New York.
- , 2003, Los primeros pueblos. In *Guayaquil al Vaivén de la Ría*, edited by Karen Stothert, Florencio Compte Guerrero, Angel Emilio Hidalgo, Willington Paredes Ramírez and Carlos Tutivén. Ediciones Libri Mundi Enrique Grosse-Luemern, Quito.
- Suarez, M., 1991, *Artesanías y Complejidad Social: Un Taller Urbano de Cuchillas de Obsidiana en la Ocupación Milagro del Sitio Peñón de Río, Cuenca del Guayas, Ecuador*. Centro de Estudios Arqueológicos y Antropológicos. Escuela Superior Politécnica del Litoral.
- , 1999, Reconocimiento arqueológico y rescate en Palobamba, Chongón, Guayaquil. *Memorias del Primer Congreso Ecuatoriano de Antropología* edited by Ernesto Salazar, Tomo III, pp. 31 – 61. Museo Jacinto Jijón y Caamaño, PUCE, Quito, Ecuador.
- Sutliff, Marie J., 1989, Domestic production of small copper artefacts during the Milagro occupation at Peñón del Río (Guayas Basin). Paper presented at the 54th Annual Meeting of the Society for American Archaeology, Atlanta.
- Ubelaker, Douglas H., 1986, Dientes humanos taladrados de la costa ecuatoriana. *Miscelánea Antropológica Ecuatoriana 6*: 95–98.
- Valdez, Francisco, 1986, Investigaciones arqueológicas en La Tolita (Esmeraldas, Ecuador). *Miscelánea Antropológica Ecuatoriana 6*: 81–107.
- , 1987, *Proyecto Arqueológico “La Tolita” (1983–1986)*. Museos del Banco Central del Ecuador.
- and Diego Veintimilla (eds.), 1992, *Amerindian Signs. 5,000 Years of Precolumbian Art in Ecuador*. Dinediciones, Quito, Ecuador.
- Véliz Alvarado, Javier and José Chancay, 2002, Proyecto “Arqueología del Gran Guayaquil”- Fase 3. In *Informes sobre la Arqueología de Santiago de Guayaquil*, edited by J. Chancay, pp. 23–28. Instituto Nacional de Patrimonio Cultural, Subdirección Regional del Litoral, Guayaquil.
- Volland, Martín, 1994, *Indianische Bevölkerungsgeschichte im Corregimiento Guayaquil (1548 – 1765)*. Holos Verlag, Bonn.
- , 1995, Los Punaes: una jefatura del Periodo Tardío de Integración. *Miscelánea Antropológica Ecuatoriana 8*: 15–27.
- Wiley, Gordon R. and Philip Phillips, 1958, *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.

- Xomchuk, I., 1996. Recopilación de los topónimos de la zona de la baja cuenca del Guayas y de Península de Santa Elena, Siglos XVI – XVII. *Cuadernos de Historia y Arqueología* 46–47, 67–78. (Publicación de la Casa de la Cultura Ecuatoriana, Benjamín Carrión, Núcleo del Guayas).
- , 1998, Los tributos indios de la antigua provincia de Guayaquil en la colonia. *Memorias del Primer Congreso Ecuatoriano*, 1:19. Departamento de Antropología/PUCE, Instituto de Historia y Antropología Andina, Asociación Escuela de Antropología. Abya-Yala, Quito.
- Zarate, Agustin, 1947 [1555], Historia del descubrimiento y conquista del Perú. *Historiadores Primitivos de Indias* 1:459–574. Madrid.
- Zeidler, James A., 1991, Maritime exchange in the Early Formative Period of Ecuador: geo-political origins of uneven development. *Research in Economic Anthropology* 13: 247–268.
- , 1995, Archaeological survey and site discovery in the forested neotropics. In *Archaeology in the Lowland American Tropics: Current Analytical Methods and Recent Applications*, edited by Peter W. Stahl, pp. 7–41. Cambridge University Press, Cambridge.
- , 1998, Cosmology and community plan in Early Formative Ecuador: some lessons from tropical ethnoastronomy. *Journal of the Steward Anthropological Society* 26 (1 & 2): 37–68. Urbana, IL.
- , 2001, Central coast regional chiefdoms. In *Encyclopedia of Prehistory. Volume 5: Middle America*, edited by Peter N. Peregrine and Melvin Ember. Kluwer Academic/Plenum Publishers, New York.
- and John S. Isaacson, 2003, Settlement process and historical contingency in the western Ecuadorian Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 69–123. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and Marie J. Sutliff, 1994, Definition of ceramic complexes and cultural occupation in the Jama Valley. In *Regional Archaeology in Northern Manabí, Ecuador, Volume 1: Environment, Cultural Chronology, and Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 111–130. University of Pittsburgh Memoirs in Latin American Archaeology, No. 8. University of Pittsburgh, Pittsburgh, and Ediciones Libri Mundi, Quito.
- Zevallos Menéndez, Carlos, 1995, *Nuestras Raíces Guancavilcas*. Casa de la Cultura Ecuatoriana “Benjamin Carrión” Núcleo del Guayas, Guayaquil.

Late Pre-Hispanic Chiefdoms of Highland Ecuador

TAMARA L. BRAY

INTRODUCTION

The natural beauty, temperate climate, and general productivity of the intermontane basins of highland Ecuador have attracted human occupation for millennia. Narrow in comparison to other sectors of the Andes, the equatorial highlands are defined by two parallel ranges known as the Cordillera Occidental and the Cordillera Oriental, each studded with an impressive array of snow-capped peaks. The intercordilleran zone between them, sometimes referred to as the “avenue of the volcanos,” is divided into 15 intermontane basins by a series of low, transverse ridges called “nudos.” During the late pre-Hispanic period, beginning around AD 800, the populations of several basins coalesced and began to develop collective identities and more complex forms of sociopolitical organization.

Within a cultural evolutionary framework, these new formations would be classed as chiefdoms, though they offer something of a challenge to our conventional models of chiefdom-level polities as well as to the framework itself. While the archaeological data from the Ecuadorian highlands are relatively sparse, when used in conjunction with the ethnohistoric information, it is possible to gain some insight into the trajectories, organization, and operation of the late pre-Incaic societies of this region. The picture that emerges contributes to our understanding of the range of variability encompassed under the rubric of “chiefdom” and ideas about the mechanisms that underpin these formations. The political configuration of the equatorial Andes may be viewed as one of a growing number of cases that point to alternative ways of conceiving and modeling social complexity beyond vertical integration and hierarchical order (e.g., White 1995; McIntosh 1999).

Given the nature of the archaeological and historical evidence from the Ecuadorian sierra, I give particular emphasis to the notion of heterarchical complexity as advanced by Crumley (1987, 1995a, b) in framing my discussion. While not discounting the significance of hierarchy as one (long-favored) way of construing complex systems, Crumley has argued that another

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

equally important principle is that of heterarchy, which emphasizes the horizontal integration of elements within a system and their unranked or variably ranked status vis-à-vis one another. To consider complexity in terms of number of dimensions rather than number of levels, degrees of differentiation rather than degree of conformity, or the kinds of potential relationships and interactions in evidence can only enrich our understanding of the concept. As Crumley (1995a) suggests, acknowledging heterarchy and hierarchy as different, non-exclusive conditions of social complexity offers greater flexibility in modeling complex societies along both spatial and temporal dimensions. For the Ecuadorian highlands, the notion of heterarchy seems to better capture and illuminate the dynamics of the late pre-Hispanic political landscape.

Based on ethnohistoric documentation, Jijón y Caamaño ([1952] 1997: 390–399) identified six broad ethnic divisions within highland Ecuador. From north to south these were the Pasto, Caranqui, Panzaleo, Puruhá, Cañari, and Palta. Of these, the most cohesive political entities during the late pre-Hispanic period were the Caranqui, Puruhá, and Cañari. These three ethno-political units are discussed below in terms of the available archaeological and ethnohistoric evidence. To facilitate comparison with other Andean and complex, non-state polities, I focus on the following categories of archaeological evidence: effective scale, settlement patterning and site types, agricultural practices, production specialization, long-distance exchange, and burial treatments. This information forms the basis for inferences about the political and economic organization of each polity, social classes, ethnic and other identities, the organization of labor, and interregional relations. In addition to providing an overview of these polities, the intent of this paper is to frame the cultural historical landscape of the northern Andes in such a way that it can be usefully incorporated into broader discussions of the development and diversity of social complexity.

CARANQUI

The territory associated with the Caranqui polity, as defined on the basis of archaeological (Athens 1980; Gondard and López 1983) and toponymic (Caillavet 1983; Salomon and Grosboll 1986) evidence, encompasses a relatively small sector of the northern highlands between the Chota-Mira River on the north and the Guayllabamba River on the south (Figure 27.1). The lateral boundaries are less well defined, though the eastern perimeter likely corresponds to the Continental Divide and the western one to the vicinity of the Intag River. The areal extent of this region, which comprises modern Imbabura and northern Pichincha provinces, is approximately 3,600 km².

Socio-political Organization

Documentary sources suggest that there were several semi-autonomous political units within this region, most important among these being the Caranqui, Otavalo, Cayambe, and Cochasqui. Over the years, there has been considerable debate regarding which, if any, of these groups was the more powerful. Espinosa (1983) argues for Caranqui preeminence, noting that it was among them that the Inca chose to erect their imperial edifices (see also Moreno 1981: 158). Larrain (1980: 117–130) considers the Cayambe paramount based on the self-proclaimed leadership of their cacique, Nasacoto Puento, in organizing local resistance against the Inca. Caillavet ([1981] 2000: 40, [1985] 2000: 165–166) sees the Otavalo as regionally dominant due to their association with the mythic origin place of Lake San Pablo, and the fact that Don Otavalango was the Inca-appointed governor at the beginning of the Colonial era.

previous convention (e.g., Jijón y Caamaño 1914), I refer collectively to the inhabitants of this ethno-political region as the Caranqui.

In early historic references to these polities, the term “cacicazgo,” a Spanish neologism approximating the notion of “chiefdom,” is frequently used. Each cacicazgo in the northern highlands comprised numerous villages. In order to have been recognized as such by the chroniclers, a village would typically have needed at least 30–50 people and five to eight households exhibiting some degree of aggregation (Larrain 1980: 77). With regard to total size, Caillavet ([1988] 2000: 155) estimates that the Otavalo-Caranqui cacicazgo, for instance, included some 15,000 people in 1579, which, if adjusted for regional depopulation, suggests a pre-conquest figure of 45,000. Beyond demography, Salomon (1986: 45) defines the communities (*llactakuna*) of this region as “groups of persons sharing hereditary rights over certain factors of production (particular lands, the labor of certain people, specific tools and infrastructures), and recognizing as a political authority a privileged member of their own number”. The head of the most important *llacta* would typically have been recognized as the head of the cacicazgo (Oberem 1981a: 76).

Documents from the 1580s list 37 caciques associated with the 14 principal villages that comprised the Otavalo-Caranqui polity prior to Spanish *reducciones* (Caillavet [1988] 2000: 146–155). Each cacique was apparently entitled to several wives and a certain amount of labor from his subjects. The latter would be required to work the lord’s fields, assist in the construction of the cacical residence, carry firewood, act as house servants, etc. (Paz Ponce [1582] 1965: 236; Salomon 1986: 122–134). Caciques also had the edge in obtaining sumptuary goods from remote locales, utilizing such articles to strategic advantage in mobilizing labor and extending their networks. In general, there appear to have been two basic status levels during the late pre-Incaic period: elites and commoners, with a possible tendency towards a third (servile) class (Salomon 1986: 138–142).

A complex network of social and economic relations involving exchanges of both goods and people formed the linkages between the different communities of the northern highlands. The various forms of exchange created bonds of kinship, economic ties of mutual dependency, and inevitable conflicts of interest. As such, these relations simultaneously encompassed the opposing forces of attraction and repulsion. The dynamics of this situation created the conditions under which the indigenous polities of the region sought, somewhat paradoxically, to both maintain their autonomous status and extend their web of connections. The history of shifting alliances, constant conflicts, and permeability of boundaries found in this region is suggestive of the different strategies used to negotiate status.

A number of different social and economic practices served to facilitate the movement of people between different villages, both temporarily and on a more permanent basis. These included exogamy (Oberem 1978: 53; Salomon 1986: 131–134), child exchange (Oberem 1978:53), and the capture of slaves (Borja [1591] 1965:246), as well as certain economic practices such as institutionalized trade and the utilization of distant production zones (Salomon 1986). In addition to generalized domestic exchange, there is evidence for a specialized class of long-distance traders known as *mindaláes* who were sponsored by individual caciques (Oberem 1978; Salomon 1978). These traders trafficked in goods of high prestige and unit value such as coca, gold, *chaquira* (bone/shell beads), stone hatchets and metal objects (Salomon 1986: 90–95). Such sumptuary goods formed the political capital of the local elite.

Settlement Patterns

Prior to Spanish intervention, native settlements seem to have been preferentially located at higher elevations in the páramos (Caillavet [1988] 2000: 144). According to early reports, villages were separated from one another by distances of one to four leagues (6–24 km) and utilized natural features such as rivers or canyons as territorial boundaries (Paz Ponce [1582] 1965: 233–241; Espinosa 1983:48). The vast majority of the population, however, did not reside in these villages but was dispersed throughout the countryside in small hamlets or isolated homesteads (Caillavet [1988] 2000: 140). These smaller units were often as far as 35–50 km from the principal villages of the caciques with whom they were affiliated (Larrain 1980: 206).

As Salomon (1986: 135) notes, the aboriginal polities of the northern sierra were not nucleated but rather ecologically and culturally heterogeneous. In the Otavalo region, for instance, the highland polities controlled outlier communities in both the western montaña and the low-lying Chota-Mira Valley (Caillavet [1989a] 2000: 53). Caillavet ([1988] 2000: 145) has suggested that the many mound sites found in the northern highlands may have constituted ritual focal points for community members whose settlements were highly dispersed. Given that the earthworks at these sites functioned as both burial places and platforms for large structures (see below), she posits that they constituted limited-use ceremonial centers rather than quotidian habitation sites. This idea finds some support in early reports that caciques maintained two residences, one in their own community and one at the center associated with the paramount lord (Salomon 1986: 124), as well as the relatively low densities of archaeological materials recovered at these sites (Athens 1980:175).

Mound Sites

One of the most salient features of the cultural landscape in the northern highlands is the large earthen mounds known locally as *tolas* (Figure 27.2). The distribution of these mounds is coterminous with the extent of Caranqui territory and influence. Nearly one hundred such mound sites have been identified in Imbabura and northern Pichincha provinces based on air-photo interpretation (Gondard and López 1983), though only 30 to 40 have been ground verified (Athens 1980; Osborn and Athens 1974; Bray 1991). Most mound sites are found within a 20-km radius of Mt. Imbabura between the modern towns of Ibarra and Otavalo at elevations between 2,200 and 3,000 masl—the optimal maize-growing zone, as noted by Gondard and López (1983: 103). While the number of earthworks per site varies greatly, ranging from one or two mounds to 148 at the largest known site of Zuleta, the majority have between 10 and 40 such features.

The two basic mound types found in the region are hemispherical and quadrilateral. Hemispherical *tolas* tend to pre-date the quadrilateral ones, with the construction of the latter thought to signal fundamental changes in sociopolitical organization. Radiocarbon dates indicate that the building of hemispherical mounds was an established practice in the northern highlands by at least AD 700. The appearance of quadrilateral mounds, particularly those with ramps, was a relatively late development and is used to mark the beginning of the Late Period (AD 1250–1525) (Athens 1980: 125–137; Oberem 1981b: 133–134).

The smaller hemispherical mounds, which range from 3–6 m in diameter and 1–2 m in height, are typically funerary in nature (Jijón y Caamaño [1952] 1997: 312; Oberem and Hartmann 1981: 50–53; Bray 2005: 129–130). The larger hemispherical *tolas*, which can exceed 30 m in diameter and 5 m in height, are generally thought to represent house



Figure 27.2. Large earthen pyramids in the north highlands of Ecuador are called “tola.” This example is Mound M at the Caranqui site of Cochasqui. (Tamara Bray)

mounds but often have burials associated as well (Jijón y Caamaño 1920: 47–56; Athens 1980: 127, 147–165; Wurster 1981: 98). The truncated pyramidal mounds, the largest of which are up to 90 m on a side and 10 m or more in height, served as platform mounds for circular structures and also sometimes contained burials (Jijón y Caamaño 1920: 48–57; Athens 1980: 127–128; Kunter 1981: 179–180). These mounds were built as stepped pyramids using courses of cut cangahua [Note 1] blocks to contain the inner fill (Uhle 1933; Oberem 1981c: 62–64; Wurster 1981: 84).

To date, no functional differences have been recognized between ramped versus non-ramped tolas (Athens 1980: 147–165; Oberem 1981c). Both types apparently served as platforms for large, roofed structures. Archaeological investigations at various sites (e.g., Urcuquí, Cochasquí, Socapampa, Otavalo, Pinsaqué, and Gualimán) have unearthed large, circular, baked-clay floors with evidence of post molds on the tops of these mounds. An unusual feature consisting of a stepped, trough-like cavity of hard-fired clay is typically found molded into these floors (Jijón y Caamaño 1914: 297; Oberem 1969a: 322; Athens 1980: 147–161) (Figure 27.3). The better preserved of these features, which range in length from 1–9 m, have conical stone firedogs (*tulpas*) associated (Oberem 1981c: 64–67; Wurster 1981). These unique features have been interpreted as hearths, possibly for the preparation of special feasts or ritual offerings (Oberem 1981c: 66; Wurster 1981: 98–100). Identical clay floors have also been found on large hemispherical tolas (e.g., Athens 1980: 147, 154) as well as on unmodified ground surfaces between mounds at the site of Cochasquí (Oberem 1981c: 65–66).

The monumental earthworks of Caranqui territory have often been assigned a religious or ceremonial function (Jijón y Caamaño [1952] 1997: 315; Oberem 1969a: 322, 1981c: 66), though it is also generally agreed that they served as house platforms, possibly for elite or cacical residences (Jijón y Caamaño 1920: 47; Athens 1980: 142; Wurster 1981:

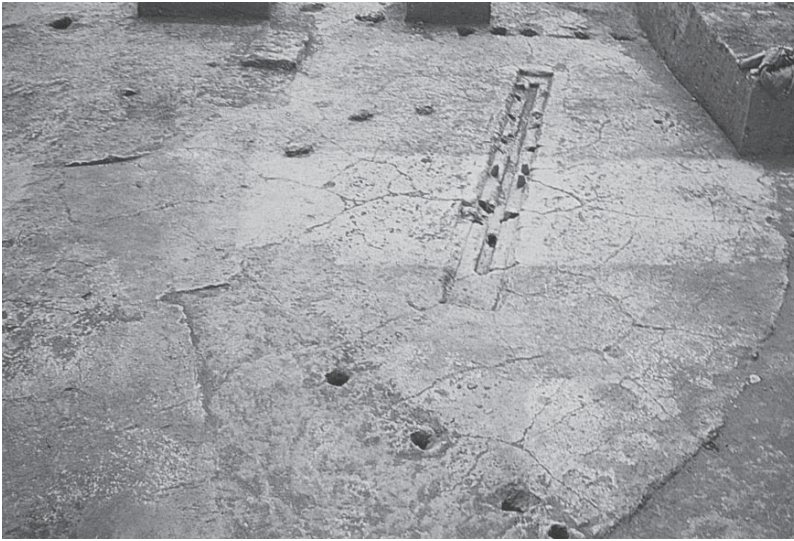


Figure 27.3. Stepped, trough-shaped cooking cavity molded into the circular floor atop Mound E at the site of Cochasqui. (Tamara Bray)

98–100). These two functions are not necessarily mutually exclusive. Around Otavalo, early colonial churches were frequently erected on top of or adjacent to tolas—a convincing sign of their sacred nature, while extant tolas were still being used by indigenous peoples for religious ceremonies into the mid-1900s (Caillavet [1981] 2000: 38). At the same time, the testimony of a native lord from 1592 states that he owned land where “his father used to have ... a tola on which he had his house” (Caillavet [1983] 2000: 109). As Salomon (1986: 126) notes, in the absence of evidence for special religious structures, “the chief’s household is likely to have been the place of ceremonial action”. The sum of the evidence suggests that the mound sites of this region were associated with ancestral burial grounds and likely served as centers for the periodic aggregation of dispersed community members for social and ceremonial purposes.

Pucarás

Pucarás, or hilltop fortresses, are another characteristic feature of the Caranqui landscape. Plaza (1976, 1977) was the first to undertake a systematic study of pucarás in the northern highlands, identifying a total of 37 through air-photo interpretation and fieldwork (see also Gondard and López 1983: 109–129; Bray 2003: 185–190). They are distributed in a large ring around Caranqui territory, spaced along the perimeter at a distance of 20–25 km from the seeming center point of Otavalo (Plaza 1976: lam.1). While the 14 pucarás associated with the Pampamarca complex near El Quinche are all above 3,400 m, the majority of the remainder are found on isolated hilltops at elevations between 2,300 and 3,000 masl.

One of the earliest ethnohistoric references to these sites is found in a lawsuit filed by the cacique of Cayambe in which he declares that the pucarás [of Pampamarca] were built over a period of eight or nine years during the time of the Inca wars (Mejía 1583, cited in Espinosa 1980: 107). Though there is little doubt that the pucarás date to the late precolumbian period, there is still debate as to whether they were local or Incaic in origin. Of the sites

excavated to date in the region, only Rumicucho, situated on the equator directly north of Quito, has produced any substantial amount of Inca material (Almeida and Jara 1984). Quitoloma, while yielding little in the way of imperial artifacts, was nonetheless classified as an Inca garrison based on certain structural elements (Oberem 1969b). In general, the majority of the pottery recovered at these hilltop sites is local in origin (Plaza 1976, 1977; Fresco 1985; Bray 1991). The sum of the evidence suggests that both the Inca and the local Caranqui population were engaged in the construction and use of the pucarás found in this region.

In his survey, Plaza identified two distinct types of pucarás based on both structural features and patterns of distribution (Plaza 1976: 86–87). The first is characterized by terracing that follows the natural topography of the hilltop incorporating steep hillslopes and is found primarily in the southern half of Caranqui territory. The second utilizes moats as the principal structural element. This latter type, which occurs primarily in the northern sector, tends to be situated on lower, flatter hilltops. Though he declined to assign cultural affiliation, I suggest, based on more recent archaeological evidence, that the pucarás characterized by the use of concentric terracing and steep slopes are Inca fortifications while the northern style employing concentric moats is an indigenous manifestation (see Bray 2008).

With regard to the probable Inca pucarás, there is little doubt that they were intended primarily as garrisoned strongholds. Their characteristic structural features, including strategic placement, terraced slopes, containment walls, and baffled doorways all indicate a basic defensive function. Many sites have also produced weaponry, including slingstones (Almeida and Jara 1984: 92; Fresco 1985; Lippi and Bray 2003; Oberem 1969b: 201), projectile points (Oberem 1969b: 200), and spear-thrower hooks (Almeida and Jara 1984: 94). The principal function of the northern style pucarás is less clear. Most are situated on low hills and many have multiple, aligned openings in the concentric elements that define them. Neither of these characteristics suggests a concern with security. Recent work focusing on the positioning of these sites in the north and central highlands suggests a correlation with natural routes of transit indicating a possible interest in the monitoring or control of movement (Bray 2003, 2008). Others have proposed a possible religious function (Gondard and López 1983: 115–116).

Camellones

Archaeological evidence of raised field agriculture is found throughout Caranqui territory (Knapp and Ryder 1983; Knapp 1988). Gondard and López (1983: 146–150) identified 19 such tracts in the northern highlands ranging in size from under 10 to over 1000 ha. These field systems, known as camellones, are located between 2,650 and 3,100 masl and are nearly all associated with mound sites, indicating a Late Period affiliation (Athens 1992: 207). Camellones represent a uniquely adapted form of indigenous agriculture involving the use of ridges and ditches that effectively channeled water flow, ameliorated surface temperatures, and provided a ready source of fertilizer for crops (Knapp 1988; Caillavet [1989b] 2000).

In addition to extending the growing season, protecting against frosts at these higher elevations, and possibly permitting the practice of double-cropping, utilization of both the raised and flooded components of these systems provided a greater range of resources than were otherwise available (Caillavet [1989b] 2000). Indigenous crops, known to have been produced on camellones, include maize, potatoes, beans, and various herbs and greens (Caillavet [1989b] 2000: 125–126). Caillavet ([1983] 2000: 113) believes the use of camellones persisted until at least the second half of seventeenth century in this region. Other

important agricultural practices documented in the Caranqui region included the construction of irrigation and drainage systems as well as terraces.

Specialization and Social Differentiation

Beyond the production of coca and salt, there is little evidence for economic specialization among the Caranqui. The homogeneous and rudimentary nature of the material remains recovered from hamlets to mound centers in this region suggests that each social unit produced crafts and utensils to meet its own needs while also retaining a sense of shared identity (Jijón y Caamaño 1914; Oberem and Wurster 1989; Bray 1991, 2005). Little exists in the way of elaborate or technologically sophisticated goods or ornamentation. Documentary evidence also indicates that individual households managed access to non-local products by maintaining their own exchange networks (Salomon 1986: 114–115; Caillavet 1989a), though caciques still enjoyed privileged rights to sumptuary items. Despite the region's heterogeneous environment, there is no indication that proximity to special resource zones conferred any political advantage (Athens 1992: 206). No particular sites appear to dominate any others in Caranqui territory, even those adjacent to prime production zones.

While it seems clear that there was some degree of social stratification during the late pre-Hispanic period, the lack of distinction in funerary assemblages, as with domestic contexts, is striking. In contrast to the deep and wealthy shaft tombs from contemporaneous sites to the north in the Carchi-Nariño region (e.g., Uribe 1977–78), the mortuary assemblages associated with the Caranqui are decidedly non-ostentatious. While the data are limited, it appears that individuals were buried in both large and small hemispherical mounds, in quadrilateral mounds, in rock shelters, and in urns (Jijón y Caamaño 1914; Athens 1980; Oberem 1981b; Bray 2005). In none of these different funerary contexts were the dead provisioned with much more than one to several ceramic vessels, and a *mano* or *metate*. Interestingly, almost all burial assemblages included one or more Panzaleo vessels, a highly distinctive non-local ware (see Bray 1995).

The combination of small scale with complex stratified organization is a hallmark of northern Andean societies (Salomon 1986: 44). Among the Caranqui, the evidence points to a considerable amount of complexity with respect to political and economic organization. But the overall emphasis seems to be on the decentralized and contingent nature of both political power and control over productive resources in patterns that conform more closely to heterarchical modes of organization. There is no clear-cut case for any kind of regional hierarchy, differential access to resources, or exclusive control of prestige goods. As Salomon (1986:137) notes, what stands out in the earliest reports from the northern highlands is “the equality of ideal standing among chiefs, each enjoying qualitatively comparable privilege and ceding in nothing but numbers to his fellows”.

PURUHA

The ethno-political territory associated with the Puruhá centers on the massive presence of Mt. Chimborazo in the Cordillera Occidental, which, at 6,310 masl, is the tallest peak in Ecuador (see Figure 27.1). Encompassing the highland portions of Chimborazo and Bolívar provinces as well as the southern half of Tungurahua, Puruhá territory includes some 8,000 km² (Haro 1977). Topographically the region comprises two highland basins, the northeastern one associated with the Chambo River and the southwestern one formed

by the Chimbo drainage system. Though the llactas of the Chimbo basin have sometimes been treated as a separate ethnic unit (e.g., Espinosa 1988), the evidence suggests considerable cultural continuity between these two halves of the Chimborazo massif. The archaeological elements that define the late pre-Hispanic period Puruhá appear ca. AD 850 (Ontaneda and Fresco 2002:21).

Socio-political Organization

As in the case of the Caranqui, the Puruhá ethno-polity seems to have comprised a conglomeration of loosely-knit cacicazgos, each headed by the leader of its most important llacta (Salomon 1986: 193; Moreno 1988: 87–92). Among the most prominent cacicazgos were the Guamote, Punín, and Guano in the Chambo basin, and the Chimbos, Chillán, Tomavela, and Pallatanga to the west (Espinosa 1988: 148–154; Moreno 1988: 84–88). Documentary evidence suggests the possibility of a slightly more developed hierarchical order among the Puruhá with the recognition of a paramount lord (Salomon 1986: 193) though I believe the situation can still be read as one of *primus inter pares*. The llactas comprising these polities were closely connected by a network of pre-Incaic roads (Haro 1977: 252). The region had an estimated 50,000 aboriginal inhabitants (Idrovo 1994: 27). Given the longer period of subjection to Inca rule, it is somewhat harder to discern the outlines of aboriginal organization among the Puruhá, though it appears to have been generally similar to the Caranqui.

Ethnohistoric information indicates that access to products from the warm lowlands, such as cotton and coca, and interregional interaction were equally important among the Puruhá as further north (Salomon 1986: 192–201). There is some hint, however, that these cacicazgos either had in place, or were moving towards, the use of specialized production enclaves in distant resource zones, more in line with Incaic models of organization (Salomon 1986: 198–199; Moreno 1988: 93). An important special resource zone in this region was Salinas de Tomavela, a center of salt production and a multi-ethnic enclave during the late pre-Hispanic period (Idrovo 1994: 210–211). Interestingly, there is no patronymic evidence for specialist long-distance traders (*mindaláes*) in Puruhá territory (Pérez 1969–70), their existence a possible casualty of imperial subjugation, though both lords and commoners alike still apparently had access to exotic goods. The vassals of the Puruhá caciques reportedly tributed agricultural labor, specialized work (e.g., carpentry, salt-making), house-building service, and firewood (Moreno 1988: 94) in similar fashion to the Caranqui.

Settlement Patterns

As with the Caranqui, Puruhá sites were dispersed across the landscape with the majority of settlements situated between 2,500–3,000 masl, the optimal zone for maize, tuber, and quinoa production (Idrovo 1994). Unlike the northern cacicazgos, however, there is no evidence for large centers or aggregation sites, though it should be noted that this region has seen little archaeological investigation since the pioneering efforts of Jijón y Caamaño in the 1920s. One of a handful of well-documented Puruhá sites is the multi-room structure of San Sebastian located near Guano (Jijón y Caamaño 1927: 37–60). The site was buried under several meters of volcanic ash, creating something of an Ecuadorian Pompeii. The complex comprised a series of pueblo-style agglutinated rooms that contained a wealth of domestic refuse. The ceramics recovered from this site served to define what Jijón considered the first Puruhá phase, which he labelled San Sebastian.

Jijón (1927: 61–127) also excavated several large cemeteries in the vicinity of Guano. The tombs are mainly of the simple pit or shaft variety and typically have from one to several ceramic vessels as well as an occasional metal ornament associated (see also Collier and Murra 1943: 22; Idrovo 1994: 150; Ontaneda and Fresco 2002: 28). With respect to other mortuary practices, there is one reported instance of a small mound (10 m diameter) with burials placed around it near Simiatug (Haro 1977: 24). Much of the pottery from the funerary contexts, which Jijón classed as Elenpata, was embellished with negative-painted (resist) design.

A fair number of pucarás also have been recorded in Puruhá territory, though none have been formally studied. Approximately a dozen are known from the Chambo basin (Haro 1977: 189–191), while six have been documented in the northern portion of Bolívar province (Chacón 1986). Both large fortresses with concentric terraces and rectangular buildings (e.g., Churolosan), as well as smaller hilltop sites incorporating concentric moats are found in this region (Figure 27.4), though the latter variety are the more prevalent (Bray 2004). Finally, several corral constructions located above 3,500 masl have also been recorded, suggesting the importance of camelid herding in this region during the late pre-Incaic period (Idrovo 1994: 205–209).

Specialization and Social Differentiation

There are several indications of specialized production among the Puruhá. The residents of the principal llacta of one cacicazgo were reportedly potters; some engaged full-time in salt production, while others focused on the production of specialty crops like cotton, coca, and ají (Salomon 1986: 194–198). The variety of metal objects found in Puruhá graves, including tupu pins, ear and nose rings, pectoral plates, and headpieces of copper, gold, and silver (Ontaneda and Fresco 2002: 30), suggests probable specialization in the area of metalworking. Like the salt springs of Tomavela, the gold and silver mines found in Puruhá territory (Haro 1977: 261, 263) may have also been controlled by specific caciques or llactas.



Figure 27.4. Pucara Milin Alto north of Simiatug in Ecuador's northern Bolívar province. (Tamara Bray)

Late pre-Hispanic period Puruhá society was clearly stratified with the differences between commoner and elite classes perhaps reflected mainly in mutually understood obligations of labor tribute and redistribution of surplus. There is little in the archaeological record at this point to suggest significant differences in wealth or power within or between communities. While elites may have had a slightly greater number of metal ornaments, many simple Puruhá burials were found to contain at least one such object. There is a similar lack of differentiation among the few domestic contexts that have been excavated. In sum, the large number of cacicazgos recorded at the time of the Spanish invasion suggests considerable decentralization while the extensive aboriginal road networks indicate a complex interconnectedness among the polities of this region. None of the evidence speaks to any strong degree of hierarchy within the Puruhá ethno-polity.

CAÑARI

Southernmost of the highland Ecuadorian chiefdoms were the Cañari. Their territory meets that of the Puruhá in the Chanchan river valley, which forms the boundary between Chimborazo and Cañar provinces (see Figure 27.1). Extending south to the Jubones Valley, and bounded on the east and west by the two cordilleras, the Cañari realm is essentially coterminous with modern Azuay and Cañar provinces, encompassing an area roughly equivalent to that of the Puruhá. Cañari territory comprised three distinct subsectors corresponding to the basins of the Cañar, Paute, and upper Jubones rivers (Moreno 1988: 96). The people of this realm were uniformly recognized by early Spanish observers as Cañaris on the basis of self-identification, shared language, similar manner of dress, and common origin stories (e.g., Cieza [1553] 1962: 144–145; Gallegos [1582] 1965).

Socio-political Organization

The Cañari comprised a collection of small regional polities that alternately engaged one another as enemies and allies. As one administrator reported, “[i]n the old days, each community had a cacique with authority over his vassals, of whom some had more than others [and these]... continually warred against and fought with each other, because each community had a head cacique and was inhabited by different groups—just as they still are here in this province—though all are Cañaris” (Gallegos [1582] 1965: 275). The perpetual state of inter-ethnic conflict, however, apparently did not prevent the Cañari from also forming alliances against external foes such as the Xíbaro and the Inca (Moreno 1988: 99).

Important Cañari cacicazgos prior to the Inca invasion included Pueleusí, Cañar proper, Chaparra, Checa, Sigsig, and Paccha, each of which had its own principal leader (Moreno 1988:99; Salazar 2004:54). As in the case of the northern Ecuadorian chiefdoms, subjects tributed food and drink to their lords, labored in their fields, and attended to the construction of their houses (Moreno 1988: 98). Each cacicazgo had its own capital center such as Ingapirca (Hatun Cañar) in the Cañar Valley, Cañaribamba in the upper Jubones Valley, Cerro Llaver (or Yabar) in the Gualaceo-Paute area, and Guapondelic in the Cuenca Valley (Idrovo 2000: 66). The heartland of each cacicazgo was the upland ridges with their boundaries defined by the rivers and lowlands (Fock 1991: 212).

As with many other highland societies, the Cañari were primarily agriculturalists. Fock (1991: 215) describes the local polities as having had an intensive irrigation-based economy. During the late pre-Hispanic period, there is evidence for increasing population

growth throughout the region with many new areas being brought into production through the introduction of terracing, which becomes quite extensive during this era (Idrovo 2000: 66). The abundant use of such non-local products as cotton, coca, salt, and marine shell among the Cañari also suggests a strong degree of interregional interaction. Early documentary sources indicate that Cañari communities maintained lands in the hot, low-lying valleys to ensure supplies of cotton and coca (Fock 1991: 213). There are also comments to the effect that Cañari lords may themselves have been specialists in long-distance trade (Guaman Poma [1613] 1936: 351). But while the cacical lineages of the various Cañari polities clearly constituted a privileged class, the economic wealth of the community does not appear to have been concentrated solely in their hands (Idrovo 2000: 65).

Settlement Patterns

As found throughout the equatorial Andes, the Cañari lived in a dispersed pattern across the landscape in small hamlets or single homesteads. Archaeological evidence from the Cuenca Valley suggests that these small sites tended to be dispersed around larger regional centers, which were the foci of politico-religious activities (Idrovo 2000: 67). Survey work in the southern sector of Cañari territory (Belote and Belote 1996) indicates that many such sites were located on terraced hilltops between 2,600 and 2,800 masl sometimes referred to as “churos” (Salazar 2004: 69). Pucarás also seem to be a common feature of the cultural landscape in Cañari territory, though they may at times be confused with “churos,” as well as a completely different type of ritual gathering place that is also referred to as “pucara” (Fock 1991). A series of Cañari fortresses have, however, been documented along the eastern cordillera (Idrovo 2000: 74; Salazar 2004: 68–69).

One of the few Cañari sites to have been archaeologically excavated is Shabalula in the Paute basin near Sigsig. It is reported to contain the remains of at least five circular domestic structures (Francisco Valdez, personal communication, 2005). Another nearby Cañari site is that of Chobshi, consisting of a large rectangular structure (100×23 m) with standing walls preserved to a height of 3 m (Salazar 2004: 63). Both of these locales produced quantities of Tacalzhapa pottery in the upper levels (Salazar 2004: 64). The latter Tacalzhapa (III) wares (AD 500–1200) are characterized by low-fired and mass-produced globular-bodied face-neck jars, compoteras, and deep bowls. These ceramics comprise the proto-Cañari substrate found across much of the Cañar-Azuay area (Idrovo 2000: 57–58). Around AD 1000, a region-wide process of increasing territoriality begins that is reflected in the proliferation of local ceramic styles. These late pre-Hispanic period styles include Cashaloma from the Cañar Valley, Guapondelic pottery from the Cuenca Valley, and Molle wares from slightly further north (Idrovo 2000: 59–63).

One of the most well known archaeological sites in the region is that of Ingapirca in the Cañar Valley. While the monumental architecture for which it is famous is classic Inca (Hyslop 1990: fig. 1.5), the conquerors apparently erected their structures atop the regional center of the Cañar proper (Hatun Cañar). The vast majority of pottery recovered from Ingapirca is of local origin, the materials in effect serving to define the Cashaloma style (Fresco 1984). The principal Cañari features at the site consist of burials ($n=30$), all of which, with the exception of one, are relatively simple and seemingly randomly located with respect to the Inca architectural elements (Fresco 1984: 112). The one more elaborate tomb is located in the Pilaloma sector of the site (Fresco 1984: 79–93). Shoe-shaped in form, about 2 m in depth, and capped by several layers of cobbles, it contained 11 individuals. The principal personage in this collective burial appears to have been a 20–30 year-old

female who was adorned with an array of copper bracelets, bells, tinklers, bangles, and tupu pins, as well as shell bead necklaces. The tomb also included 15 ceramic vessels (Fresco 1984: 79–93).

While rich vis-à-vis other burials at the site, the funerary offerings associated with this tomb are quite modest in comparison to burials from the antecedent period in the Paute basin and elsewhere (Salazar 2004:56–61). Though looted in their entirety early on, second-hand reports indicate that these presumably Tacalzhapa-period tombs were rich beyond belief in precious stones, gold and silver objects (Uhle 1922). Even though differences between commoner and elite graves do not appear to have been as acute during the subsequent, late pre-Hispanic period, some differentiation is nonetheless indicated.

Specialization and Social Differentiation

Some degree of economic specialization seems to have characterized the different Cañari cacicazgos. Those in the Jubones Valley, for instance, had special access to the products of the coast, while those in the Paute basin had direct links to Amazonian goods. Certain centers such as Peuleusí were known for ceramic production while others specialized in metallurgy (Idrovo 2000: 64) or river fishing (Moreno 1988:97). Overall there appears to have been a dynamic network of interregional connections and economic interaction in Cañari territory. The available data suggest that the Cañari ethno-polity functioned as a diffuse and decentralized sociopolitical formation. In other words, there was no over-arching hierarchical structure to the regional organization. The general picture is one of a complex social landscape in which small-time lords engaged one another on a continual basis in order to build webs of support, defend their positions, enhance their prestige, and obtain desired extra-local goods.

CONCLUSION

The late pre-Hispanic period polities of highland Ecuador display a remarkable degree of structural similarity. The tenor of this structure is one of complex organization absent hierarchical structure. The pattern of numerous petty chieftancies engaged with one another along multiple dimensions that varied by level and scale seems best described by the concept of heterarchy. There is no question that these societies were complex—to manage the number and kinds of interactions described for each with the aim of maintaining or bettering one's position was no small feat. These were necessarily complicated affairs, yet they seem to have been managed by communities that lacked leaders or elites who demanded excessive material differentiation or engaged in the ostentatious display of wealth. The Ecuadorian data suggest either that the archaeological markers we typically use to identify social complexity are not of a kind with the reality of complex pre-Columbian societies of this region or that social complexity must be construed in ways other than the accustomed order of centralization and hierarchy.

ACKNOWLEDGMENTS In preparing this chapter, I have benefited from the knowledge and work of many colleagues, among whom I would like to thank, in particular, J. Stephen Athens, Chantal Caillavet, Cristóbal Landázuri, Ernesto Salazar, and Francisco Valdez. I would also like to express my thanks to the Director and staff at the School of American Research for the gifts of time and comfort I was afforded there as a resident scholar when this chapter was produced.

NOTES

1. Cangahua is a deep, consolidated loess deposit from the last glacial period. It occurs throughout much of the southern Colombian and northern Ecuadorian highlands.

REFERENCES

- Almeida, Eduardo and Holguer Jara, 1984, *El Pucara de Rumichucho*. Miscelánea Antropológica Ecuatoriana, Serie Monografía 1. Museo del Banco Central del Ecuador, Quito.
- Athens, J. Stephen, 1976, Informe preliminar sobre investigaciones arqueológicas realizadas en la sierra norte del Ecuador. *Sarance* 2: 56–78.
- , 1980, *El Proceso Evolutivo en las Sociedades Complejas y la Ocupación del Período Tardío-Cara en las Andes Septentrionales del Ecuador*. Colección Pandoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- , 1992, Ethnicity and adaptation: the late period Cara occupation in northern highland Ecuador. In *Resources, Power, and Interregional Interaction*, edited by Edward Schortman and Patricia Urban, pp. 193–219. Plenum Press, New York.
- Belote, Jim and Linda Belote, 1996, *Archaeological Survey of the Northern Loja Province, Ecuador, 1969–1994: Sites, Structures, and Artifacts*. University of Minnesota Press, Duluth.
- Borja, Antonio, 1965 [1591], Relación en suma de la doctrina e beneficio de Pimampiro y de las cosas notables que en ella hay. In *Relaciones Geográficas de Indias*, edited by Marcos Jiménez de la Espada, Tomo II, pp. 248–253. Ediciones Atlas, Madrid.
- Bray, Tamara L., 1991, The Effects of Inca Imperialism on the Northern Frontier. Ph.D. dissertation. Department of Anthropology, SUNY-Binghamton.
- , 1995, The Panzaleo puzzle: non-local pottery in northern highland Ecuador. *Journal of Field Archaeology* 22 (2): 137–148.
- , 2003, *Los Efectos del Imperio Incaico en la Frontera Septentrional: Una Investigación Arqueológica*. Abya-Yala Press, Quito.
- , 2004, Informe Anual para el Proyecto “La Arqueología de Etnicidad: Los Mitimaes en la Provincia Cotopaxi, Ecuador.” Manuscript on file at the National Institute of Cultural Patrimony, Quito, Ecuador.
- , 2005, Archaeological investigations in northern highland Ecuador: the Pimampiro District as a multi-ethnic locale. *Journal of Field Archaeology* 30 (2): 119–141.
- , 2008, Pucaras, personnel, and imperial practice: a comparative look at Inca fortress installations around the empire. In *Marginal Provinces in the Inka Empire: Towards a Better Understanding of Inka Imperialism*, edited by Sonia Alconini and Michael Malpass. University of Iowa Press, Des Moines.
- Caillavet, Chantal, 1981, Etnohistoria ecuatoriana: nuevos datos sobre el Otavalo prehispánico. *Cultura: Revista del Banco Central* 11: 109–127.
- , 1983, Toponimia histórica, arqueología, y formas prehispánicas de agricultura en la región de Otavalo, Ecuador. *Bulletin de l'Institut Français d'Etudes Andines* 12 (3–4): 1–21.
- , 1985, La adaptación de la dominación incaica a las sociedades autóctonas de la frontera septentrional del Imperio (territorio Otavalo-Ecuador). *Revista Andina* 3 (2): 403–423.
- , 1988, Les chefferies préhispaniques du Nord de l'Equateur: formes d'habitat et organisation territoriale. *Bulletin de l'Institut Français d'Etudes Andines* 27 (2): 41–59.
- , 1989a, Entre sierra y selva: las relaciones fronterizas y sus representaciones para las étnias de los Andes septentrionales. *Anuario de Estudios Americanos* 46: 71–91.
- , 1989b, Las técnicas agrarias autóctonas y la remodelación colonial del paisaje en los Andes septentrionales (siglo XVI). *Ciencia, Vida y Espacio en Iberoamérica*, Vol. 3, edited by J. L. Peset, pp. 109–126. CSIC, Madrid.
- , 2000, *Etnias del Norte: Etnohistoria e Historia de Ecuador*. Ediciones Abya-Yala, Quito.
- Chacón, Galo, 1986, *Las Fortalezas Quiteñas de Angamarca*. Escuela Politécnica del Ejército, Quito.
- Cieza de León, Pedro, 1962 [1553], *La Crónica del Perú. Primera Parte*. Editorial Espasa-Calpe, Madrid.
- Collier, Donald and John Murra, 1943, *Survey and Excavations in Southern Ecuador*. Anthropological Series, Field Museum of Natural History, No. 35.
- Crumley, Carole, 1987, A dialectical critique of hierarchy. In *Power Relations and State Formations*, edited by Thomas Patterson and Christine Gailey, pp. 155–169. American Anthropological Association, Washington, D.C.

- _____, 1995a, Heterarchy and the analysis of complex societies. In *Heterarchy and the Analysis of Complex Societies*, edited by Robert Ehrenreich, Carole Crumley, and Janet Levy, pp. 1–5. Archaeological Papers of the American Anthropological Association, No. 6. Washington, D.C.
- _____, 1995b, Building an historical ecology of Gaulish polities. In *Celtic Chiefdom, Celtic State: The Evolution of Complex Social Systems in Prehistoric Europe*, edited by Bettina Arnold and D. Blair Gibson, pp. 26–33. Cambridge University Press, Cambridge.
- Espinosa, Waldemar, 1980, El Curaca de los Cayambes y su sometimiento al imperio español, siglos XV y XVI. *Bulletin de L'Institut Francais d'Etudes Andines* 9 (1–2): 89–119.
- _____, 1983, *Los Caranquis y Los Cayambes*. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- _____, 1988, *La Etnia Chimbo al Oeste de Riobamba: El Testimonio de la Etnohistoria*. Miscelánea Antropológica Ecuatoriana, Serie Monográfica 8. Guayaquil.
- Fock Niels, 1991, The topocentric space: Cañar Indian conceptualization of the landscape. *Folk* 33: 211–228.
- Fresco, Antonio, 1984, *La Arqueología de Ingapirca (Ecuador)*. Banco Central del Ecuador, Quito.
- _____, 1985, Inca pucaras. Unpublished manuscript on file at the Central Bank of Ecuador, Quito.
- Gallegos, Gaspar, [1582] 1965, Sant Francisco Puelensi del Azogue. In *Relaciones Geográficas de Indias*, edited by Marcos Jiménez de la Espada, Tomo II, pp. 274–278. Ediciones Atlas, Madrid.
- Gondard, Pierre and Freddy López, 1983, *Inventario Arqueológico Preliminar de los Andes Septentrionales del Ecuador*. MAG, PRONAREG, and ORSTOM, Quito.
- Guaman Poma de Ayala, Felipe, [1613] 1936, *Nueva Corónica y Buen Gobierno*. Institut d'Ethnologie, Paris.
- Haro, Silvio, 1977, *Puruhá: Nación Guerrera*. Editora Nacional, Quito.
- Hyslop, John, 1990, *Inka Settlement Planning*. University of Texas Press, Austin.
- Idrovo, Jaime, 1994, *Kuracazgos Autónomos y el Control de Ecologías Diversos: Caso La Provincia de Bolívar*. Fondo de Cultura Ecuador, Cuenca.
- _____, 2000, *Tomebamba: Arqueología e Historia de una Ciudad Imperial*. Banco Central del Ecuador, Cuenca.
- Jijón y Caamaño, Jacinto, 1914, *Contribución al Conocimiento de los Aborígenes de la Provincia de Imbabura*. Blas y Cia, Madrid.
- _____, 1920, Nueva Contribución al Conocimiento de los Aborígenes de la Provincia de Imbabura. *Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos* 4(10–11):1–120, 183–245. Quito.
- _____, 1927, *Puruhá: Contribución al Conocimiento de los Aborígenes de la Provincia de Chimborazo*. Editorial Ecuatoriana, Quito.
- _____, [1952] 1997, *Antropología Prehispánica del Ecuador*. Pontificia Universidad Católica del Ecuador, Quito.
- Knapp, Gregory, 1988, *Ecología Cultural Prehispánica del Ecuador*. Ediciones del Banco Central, Quito, Ecuador.
- _____, and Roy Ryder, 1983, Aspects of the origin, morphology, and function of raised fields in Quito Altiplano, Ecuador. In *Drained Field Agriculture in Central and South America*, edited by J. Darch, pp.184–220. British Archaeological Report, International Series, No. 189. Oxford.
- Kunter, Kari, 1981, La serie de esqueletos humanos de Cochasquí y de otras regiones del Ecuador. In *Cochasquí: Estudios Arqueológicos*, edited by Udo Oberem, pp.171–218. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- Larrain, Horacio, 1980, *Demografía y Asentamientos Indígenas en la Sierra Norte del Ecuador en el Siglo XVI: Estudio Etnohistórico de las Fuentes Tempranas (1525–1600)*. Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- Lippi, Ronald and Tamara L. Bray, 2003, The Pucara de Palmitopamba: An Inca Fortress in Northwestern Ecuador's Subtropical Rainforest. Paper presented at the Annual Institute for Andean Studies Meetings, Berkeley, California.
- McIntosh, Susan, 1999, Pathways to complexity. In *Beyond Chiefdoms: Pathways to Complexity in Africa*, edited by Susan McIntosh, pp. 1–30. Cambridge University Press, New York.
- Moreno, Segundo, 1981, *Pichincha: Monografía Histórica de la Región Nuclear Ecuatoriana*. Consejo Provincial de Pichincha, Quito.
- _____, 1988, Formaciones políticas tribales y señoríos étnicos. In *Nueva Historia del Ecuador*, Vol. 2, edited by Enrique Ayala, pp. 10–134. Corporación Editora Nacional, Quito.
- Oberem, Udo, 1969a, Informe provisional sobre algunas características arquitectónicas de las pirámides de Cochasquí, Ecuador. *Amerikanistenkongr* 1: 317–322.
- _____, 1969b, La Fortaleza de la Montaña de Quitoloma. *Boletín de la Academia Nacional de Historia* 114: 196–204. Quito

- _____. 1978, El acceso a recursos naturales de diferentes ecologías en la sierra ecuatoriana (siglo XVI). *Memorias del Congreso Internacional de Americanistas*, pp. 51–64. Paris.
- _____. 1981a, Los Caranquis de la sierra norte del Ecuador y su incorporación al Tahuantinsuyu. In *Contribución a la Etnohistoria Ecuatoriana*, edited by Segundo Moreno and Udo Oberem, pp. 72–101. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo.
- _____. 1981b, Los montículos funerarios con pozo. In *Cochasquí: Estudios Arqueológicos*, edited by Udo Oberem, pp. 125–142. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- _____. 1981c, Algunas características arquitectónicas de las pirámides de Cochasquí. In *Cochasquí: Estudios Arqueológicos*, edited by Udo Oberem, pp. 59–70. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- _____ and Roswith Hartmann, 1981, Informe de trabajo sobre excavaciones arqueológicas de 1964–1965. In *Cochasquí: Estudios Arqueológicos*, edited by Udo Oberem, pp. 39–58. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- _____ and Wolfgang Wurster (eds.), 1989, *Excavaciones en Cochasquí, Ecuador, 1964–1965*. Verlag Philipp von Zabern, Mainz am Rhein.
- Ontaneda, Santiago and Antonio Fresco, 2002, *Riobamba*. Museo del Banco Central, Quito.
- Osborn, Alan and J. Stephen Athens, 1974, Prehistoric earth mounds in the highlands of Ecuador: A preliminary report. Manuscript on file, Instituto Otavaleño de Antropología, Otavalo, Ecuador.
- Paz Ponce de León, Sancho de, 1965 [1582] Relación descripción de los pueblos de partido de Otavalo. In *Relaciones Geográficas de Indias*, edited by Marcos Jiménez de la Espada, Tomo II, pp. 233–241. Ediciones Atlas, Madrid.
- Pérez, Aquiles, 1969–70, *Los Puruhayes*. Casa de Cultura, Quito.
- Plaza Schuller, Fernando, 1976, *La Incurción Inca en el Septentrion Andino Ecuatoriano*. Serie Arqueologica No. 2. Instituto Otavaleño de Antropología, Otavalo.
- _____. 1977, *El Complejo de Fortalezas de Pampamarca*. Serie Arqueológica No. 3. Instituto Otavaleño de Antropología, Otavalo.
- Salazar, Ernesto, 2004, Cuenca y su región: en busca del tiempo perdido. In *Cuenca: Santa Ana de las Aguas*, edited by Marcela García, pp. 18–85. Ediciones Libri Mundi, Quito.
- Salomon, Frank, 1978, Pochteca and mindalá: a comparison of long-distance traders in Ecuador and Mesoamerica. *Journal of the Steward Anthropological Society* 9 (1–2): 231–247.
- _____. 1986, *Native Lords of Quito in the Age of the Incas*. Cambridge University Press, New York.
- _____ and Sue Grosboll, 1986, Names and people in Incaic Quito: retrieving undocumented historic processes through anthroponymy and statistics. *American Anthropologist* 88 (2): 387–399.
- Uhle, Max, 1922, Sepulturas ricas de oro en la provincia del Azuay. *Boletín de la Academia Nacional de Historia* 4 (9): 108–114.
- _____. 1933, *Estudio sobre las Civilizaciones del Carchi e Imbabura*. Talleres Tipográficos Nacionales, Quito.
- Uribe, María Victoria, 1977–78, Asentamientos prehispánicos en el altiplano de Ipiales, Colombia. *Revista Colombiana de Antropología* 21: 57–195.
- White, Joyce, 1995, Incorporating heterarchy into theory on socio-political development: the case from southeast Asia. In *Heterarchy and the Analysis of Complex Societies*, edited by Robert Ehrenreich, Carole Crumley, and Janet Levy, pp. 101–123. Archaeological Papers of the American Anthropological Association, No. 6. Washington, D.C.
- Wurster, Wolfgang, 1981, Aportes a la reconstrucción de edificios con planta circular sobre las pirámides con rampa de Cochasquí. In *Cochasquí: Estudios Arqueológicos*, edited by Udo Oberem, pp. 79–124. Colección Pendoneros, Instituto Otavaleño de Antropología, Otavalo, Ecuador.

The Formative Period in the Titicaca Basin

CHRISTINE A. HASTORF

INTRODUCTION

The Titicaca basin sits at the northern end of the expansive altiplano high plains, straddling the highland border of modern Peru and Bolivia. The grasslands are excellent for herding and are also arable along the lakeshore, being a center of tuber production and the font of the domestic *Chenopodium* and the potato. The lake is full of edible fish as well as having a range of useful waterweeds and reeds along the lakeshore. Early human evidence suggests foraging, hunting, fishing, and birding were all productive subsistence strategies. When these activities began in the area is not firmly known, but there are solid dates for foragers by 4000 BC.

At around 1500 BC archaeologists can see evidence of the earliest settlements, small ceremonial centers, and the onset of territoriality. The term Formative is used to encompass these changes in lifeways from the preceding foraging era. The Formative Period [Note 1] (1500 BC-AD 475) is defined as the time when humans began marking their landscape, creating more permanent settlements, while they domesticated plants and animals. The Formative Period witnessed the creation of a series of ritually charged and intensively agricultural-herding based polities. Some consider the Formative Period a time of social stratification development, with political spheres centered at the civic-ceremonial settlements (Stanish 2003). Others see these long-lived centers as illustrating a strong sense of autonomy and sustainability (Hastorf 2003; Bandy 2004). The Formative Period in this part of the highlands spans almost 2,000 years, thus extending up to the early expansion of the Tiwanaku polity influence (see Chapter 37 in this volume). The end of the Late Formative is marked by the large-scale hegemonic shift around AD 475, when Tiwanaku's influence is evident outside of the Titicaca basin. The 2,000-year temporal sequence of the Titicaca basin Formative Period is presented in Table 28.1, which lists dates, local, regional, and northern phase names and changes in the main environmental entity, the levels of Lake Titicaca.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

Table 28.1. Titicaca Basin Chronology (after Bandy 2004).

Calendar years	Lake Levels	S. Basin Phasing	Basin Phasing Greater Titicaca	Rowe Chronology
1500-1000 BCE	high	Early Chiripa	Early Formative I	Initial Period
1000-800 BCE	low	Middle Chiripa	Early Formative II	Early Horizon
800-250 BCE	high, low	Late Chiripa	Middle Formative	Early Horizon
250 BCE-CE300	high, low	Tiw. I Qalzasasaya	Late Formative I	Early Intermediate
CE 300-475	high	Tiw III Qeya	Late Formative II	Early Intermediate
CE 475-1100	high	Tiwanaku IV-V	Tiwanaku IV-V	Middle Horizon
CE 1100-1450	low, high	Pacajes	Señorios	Later Intermediate
CE 1450-1540	high	Pacajes-Inka	Inka	Late Horizon

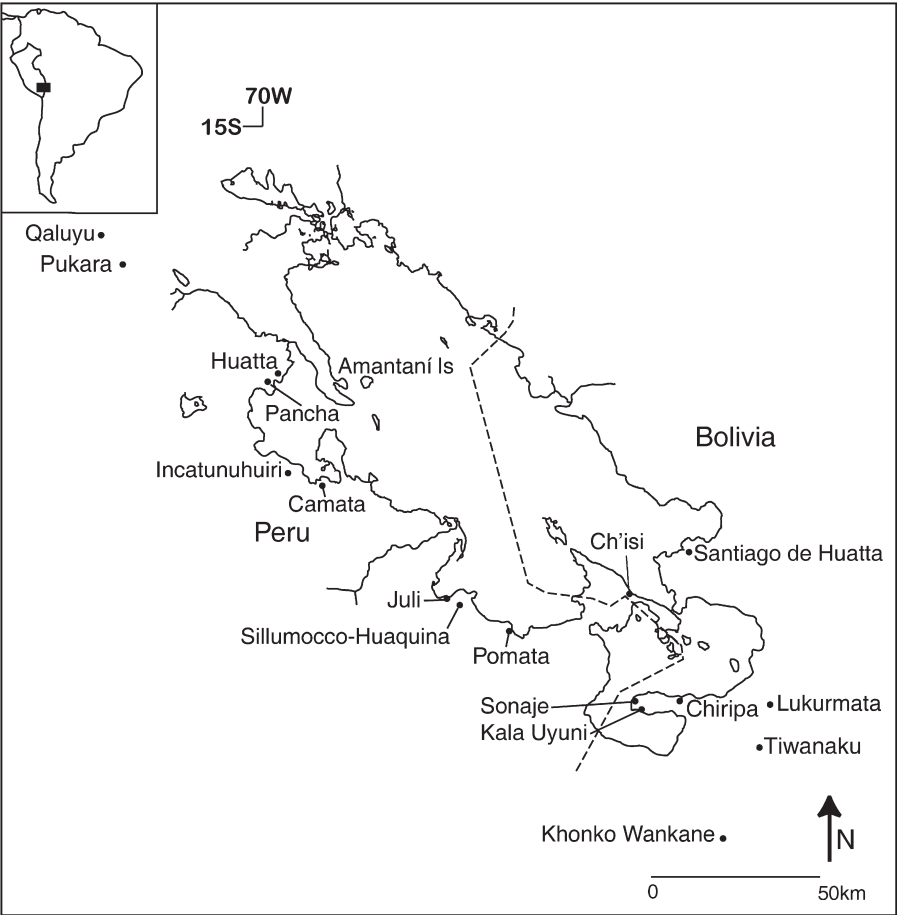


Figure 28.1. Map of the Titicaca Basin with archaeological sites mentioned in text (Drawn by William T. Whitehead)

Research on the Formative Period over the past fifty years, and especially in the past twenty, has been extensive, informed by the work of dozens of outstanding scholars whose publications are too numerous to cite in this brief chapter. Out of this work, we now have a series of ceramic sequences, architectural forms and settlement patterns (Figure 28.1) that

give a more accurate sense of the events that occurred during this dynamic time period. In this chapter, I will concentrate on the major cultural events that recent archaeological research is clarifying, with a focus on the Middle and Late Formative phases.

CHANGE DURING THE FORMATIVE PERIOD

Overview

As the Formative Period began the climate became progressively wetter (and perhaps warmer), the lake level rose, and the grasslands increased, making the Titicaca basin more hospitable and arable (Figure 28.2). Archaeologists are uncovering sites that have early dates, especially on the west lakeshore (Cipolla 2005).

Ritual, political, and economic changes throughout the Formative sequence are seen in settlement patterns, architectural layout, ceremonialism, feasting evidence, lithics, carved stone imagery, ceramics, and plant and animal use. Particularly notable changes are seen in the major shifts in emphasis of mood and iconographic image on stone and ceramics, associated with the shifts in architectural constructions. These are the elements that define the sub-phases in the region. The images are not literal but symbolic. Early stone images suggest agricultural renewal and fertility, having links to water and growth in today's altiplano symbolic world. These early agricultural fertility images are what Browman (1972) describes as the Asiruni images of the snake, lizard, and frog. Social-political change and politics are evident in the increased ritual elaboration in the architectural complexes and diverse media. The material evidence of increasing integration means that there were more people on the landscape and also that there were a series of new and different forms of interaction. These cultural forms included more regular farming and herding, long distance trade, increasing territoriality and self identification of group, memorializing ancestors



Figure 28.2. The shore surrounding modern Lake Titicaca (photo by William T. Whitehead)

through communal ceremonies that included food, drink, music, smoke, and processions. Subsistence was still a healthy mix of camelid husbandry, fishing, and a range of foraging including increasingly intensive tuber and *Chenopodium* collection, eventually slipping into farming by the Late Formative (Bruno and Whitehead 2003).

Early Formative

The Early Formative (1500-800 BC) is marked by ephemeral domestic structures that are rarely visible archaeologically. However, at small settlements along the shore of Lake Titicaca there is the first permanent architecture in the region in the form of surface-level and sunken enclosures (Hastorf 1999). This is the first civic architecture in the Titicaca basin. Early ceremonial enclaves are oriented towards the high mountain peaks (Leonardo Benetiz, personal communication, 2005).

From excavation, there is evidence of prepared surfaces within mud-brick walls over 10m in length at a few sites. These early sites are found along the lakeshore, overlooking the lake. Settlements were autonomous, however there was surely regular communication between neighbors.

Chiripa has been more intensively studied for this time period and thus will be more reported on here (Bennett 1936; Browman 1978, 1980; Chávez 1988; Hastorf 1999; Kidder 1956; Mohr 1966; Ponce 1970; Portugal Ortíz 1992). In Early Formative I (1500-1000 BC) on the lowest of three hillside terraces there is an extensive plastered surface within an adobe walled enclosure, containing multiple burial pits. The burial pits that the Taraco Archaeological Project has opened contain multiple burials, with additional individuals deposited with adult females (Dean and Kojan 2001; Steadman and Hastorf 2001; Hastorf 2003; Eduardo Machicado, personal communication, 2007).

There is more evidence for the next sub-phase, the Early Formative II (Middle Chiripa, 1000-800 BC). The differences between the northern basin and the southern basin are reflected in the artifacts, lithics, ceramics and trade items (this would change only with the post-Formative Tiwanaku IV phase, after AD 500) (Amanda Cohen, personal communication, 2006).

Around 1000 BC the first sunken enclosures were built at the larger settlements, becoming more common later in the Middle Formative Period (see below). They are sunken because they were excavated into the earth, and then supported with rock walls that are plastered and painted, blending into the landscape with a modest impact on sight-lines. These enclosures gave some privacy to people participating in events within them, although onlookers could gain a good vantage from the surrounding banks. Their early significance is still much discussed, especially as the earth (Pachamama) has long been seen as the source of life in the Andes. This sunken enclosure tradition was a powerful and important form of ritually marking sacred space and territory, allowing varying sizes of groups to “meet” with the ancestors. As such, sunken enclosures are still used today by communities, as seen on the island of Amantaní in Lake Titicaca (Niles 1987b; Spahni 1971). Such continuities in the Titicaca basin support assumptions about the importance of chthonic power, fertility, and land claims through ancestral propitiation. These semi-subterranean edifices were built until 100 BC. There is one such enclosure recorded at Chiripa, dating to the Early Formative II phase (Choquehuanca), located on the first terrace above the lake. These trapezoidal sunken enclosures measure around 14 m × 11 m, widening eastward (Whitehead 1999; Hastorf 1999, 2003). Most of these date to the following phase.

Middle Formative

The Middle Formative (800-250 BC) is when we see clusters of settlements for the first time. There are at least eight documented regional settlement clusters around the lake with civic-ceremonial architecture dating to this phase. The ceremonial architecture consists of stepped platform mounds, often in conjunction with the sunken enclosures. Stanish (1994) speaks of a Middle Formative Sunken Court Tradition because each of the larger sites in this time period has a sunken court, later placed next to raised platform mounds.

The site clusters suggest discrete self-identifying polities, visible archaeologically with their centrifugal placement, architecture, artifact types and iconography. The political world is comprised of loosely woven, ritually driven lineage alliances, covering the landscape in sedentary settlements, ceremonial centers, alignments and agricultural fields. The architecture suggests a focus on chthonic rituals, with the ceremonies gravitating around special burials. These ceremonial places are usually oriented towards mountain peaks, the font of water and where the ancestors dwell.

The Middle Formative is most clearly identified with sites like Chiripa, Incatunuhuri, Qaluyu, Ch'isi, and Sillumocco-Huaquina. These Titicaca centers were located in the most temperate climatic zones of the region along the lakeshore, often oriented to the mountain peaks. Qaluyu is an exception, located inland along the Pukara River (Figure 28.1). These settlements grew in local influence with increased exchange and political competition through this time period.

The Late Chiripa phase, also called the Middle Formative (800-250 BC), has yielded more ceremonial construction. The archaeological data inform us that these were a dynamic and exciting 500 years in the basin. The lake rose at the beginning of this phase, providing lush marshes around the shoreline. Then in late Middle Formative times, the lake level dropped, expanding the pampa, providing more grazing land—if less accessible fishing. During this time settlement clusters became ubiquitous around the basin (Stanish 2003; Hastorf 2005). While there are basin-wide similarities, each center displays slightly different stylistic features, most clearly seen in the recent detailed ceramic studies by Steadman at Camata (1995) and Chiripa (1999) and the new material from Incatunuhuri (Frye and Steadman 2001). From this research, we learn that these lakeshore groups developed their own ceramic traditions, although the northern clusters were influenced by Qaluyu/Pukara styles and the southern settlements by the Chiripa/Taraco Peninsula styles.

The populations were denser in areas that are slightly more protected and warmer, such as the Santiago de Huatta Peninsula and the Taraco Peninsula. It is possible that these different alliance groups spoke different languages or dialects, for there is historic and ethnographic evidence that there were many more languages spoken around the lake in the past than there are today (Denise Arnold, personal communication, 1999; today Aymara predominates; there are pockets of Quechua speakers in the north, brought in by the Incas; the almost nonexistent Pukina language is found to the east).

Albarracin-Jordan has constructed a plausible model for local political development in the Tiwanaku Valley (1996). He proposes a form of nested kin-based ayllu, distributed across the landscape, that developed through interactive influence during the Middle and Late Formative (see also Platt 1986). Political leadership structures are inferred, but some form of economic accumulation via kin-based ayllu consolidation (families linked to territory emotionally, physically, and corporeally) grew over these 500 years. As these self-identities developed and consolidated, built upon fertility imagery, memorialization of ancestors and stone carvings with surreal imagery (Figure 28.3), it appears that interest in



Figure 28.3. Middle Formative carved stone in the Pa'Ajano/Yaya Mama style. (Christine Hastorf)

exotic items also increased, entering both from the west coast, the northern and southern mines, as well as from the eastern forests. These items included sodalite beads, copper, arsenical bronze, salt, and warm valley plants (trees, ritually used plants and medicines). Both Browman and Stanish have suggested that the engine for this political centralization was through extra-basin trade (Browman 1984; Stanish 2002). Bandy and Hastorf, on the other hand, see such increased communication as a reflection of relative peace and productivity throughout the basin, allowing for developing and elaborating ceremonies that brought people together throughout the annual cycle. Such movements around the basin, including pilgrimages to the centers, would naturally evolve into trips farther afield, seeking new ways to honor the dead (such as with *Spondylus*, vilca [*Anadenanthera colubrina*] and coca [*Erythroxylum coca* Lam.]).

When Wendell C. Bennett published his survey of Lake Titicaca basin archaeology in 1950, he mentioned six sites, five of which were phased in the Formative by diagnostic

pottery. While today over a dozen sites with sunken enclosures potentially dating to this phase have been investigated, there should be many more as yet unreported sites, especially circling the larger centers. A Middle Formative center is defined as a site with a sunken enclosure that also may have a raised platform mound. These centers hug the lakeshore and often have a view of the magnificent snow-peaked mountain ranges, still important deities today. At least by the end of this phase, the larger sites were regularly spaced around the lakeshore in more densely populated regions like the Taraco, Copacabana, and the Huatta peninsulas in the south as well as along larger rivers like the Pukara and the Ilave to the north. Surveys have documented the distribution of these centers about every 6 km, with smaller settlements in between, as shown in the work of Charles Stanish (1997) and Clark Erickson (1996) on the western and northern shore, Eduardo Casanova (1942), Karen and Sergio Chávez (1997) on the Copacabana Peninsula, Carlos Lémuz (2001) and José Luis Paz Soría in the Santiago de Huatta Peninsula-Achacachi area, and Matthew Bandy (2001) on the Taraco Peninsula. In fact, it is quite clear from these more systematic surveys that there are quite dense settlements by this Middle Formative time. Albarracín-Jordan and Mathews (1990) discovered clusters of sites (about four sites per cluster) dating to this time period in the Tiwanaku Valley, containing ceramics similar to Chiripa, some 10 km away. These archaeologists suggest that these settlements housed related kin ayllus. In fact, Mathews (1995) has suggested that some of these Tiwanaku Valley clusters are outposts of a Chiripa “chiefdom.” We know, now, that another Taraco Peninsula site, Kala Uyuni was more likely to have been Tiwanaku’s early competitor (Bandy and Hastorf 2007).

Chiripa has been the center most often identified with this time period. While we now know about other settlements, Chiripa continues to stand out, in large part because of the extent of archaeological work that has been completed there. Bandy’s (2001) survey, however, has turned up three other contemporaneous sites from this time period on the Taraco Peninsula, suggesting that Chiripa was one of a set of regularly spaced centers on the peninsula in this phase. Numerous names have been used for this socio-religious development in the southern basin: Classic Chiripa (Bennett 1936), the Lower and Upper House levels (Kidder 1956), Mamani (Browman 1978a, 1980, 1981), and Late Chiripa (K. Chávez 1988; Mohr 1966; Hastorf 1999b; Hastorf et al. 1997). This Late Chiripa Phase is further subdivided, based on architectural elaboration and absolute dating. At Chiripa, a series of enclosures were built upon the three terraces up the hillside (e.g. Quispe and Llusco). These trapezoidal enclosures measure approximately 13 m × 11 m, each having a drainage canal (Hastorf 1999; Hastorf et al. 1997; Paz Soría 1999). In addition to these early sunken courts at Chiripa, an elevated platform mound was renewed continuously on the middle terrace throughout the Formative Period. The mound began as a ground level enclosure in the Early Chiripa phase. Then, during early Late Chiripa times, a number of 3 m × 4 m structures were built on a low terrace, probably placed around a central enclosure. Periodically these floors were burnt. After a sequence of ritual closures and rebuilding events, the populace altered the architectural style and built fourteen coordinated rectangular structures that symmetrically encircle a sunken enclosure on a higher platform mound (Figure 28.4). These structures were not rebuilt but were used for ritual storage and small ceremonies for several centuries until around 250 BC (Hastorf 2003). After these structures were burnt and their walls pushed inward, the platform was filled in and a series of three yellow surfaces were laid down encircling the sunken court. Recent ceramic analysis from these fills and floors on the mound tells us that this sequence occurred in the Late Chiripa phase (Steadman personal communication 2007). Chiripa seemed to lose its ritual influence by the end of the Formative time, as the pull of Tiwanaku grew.

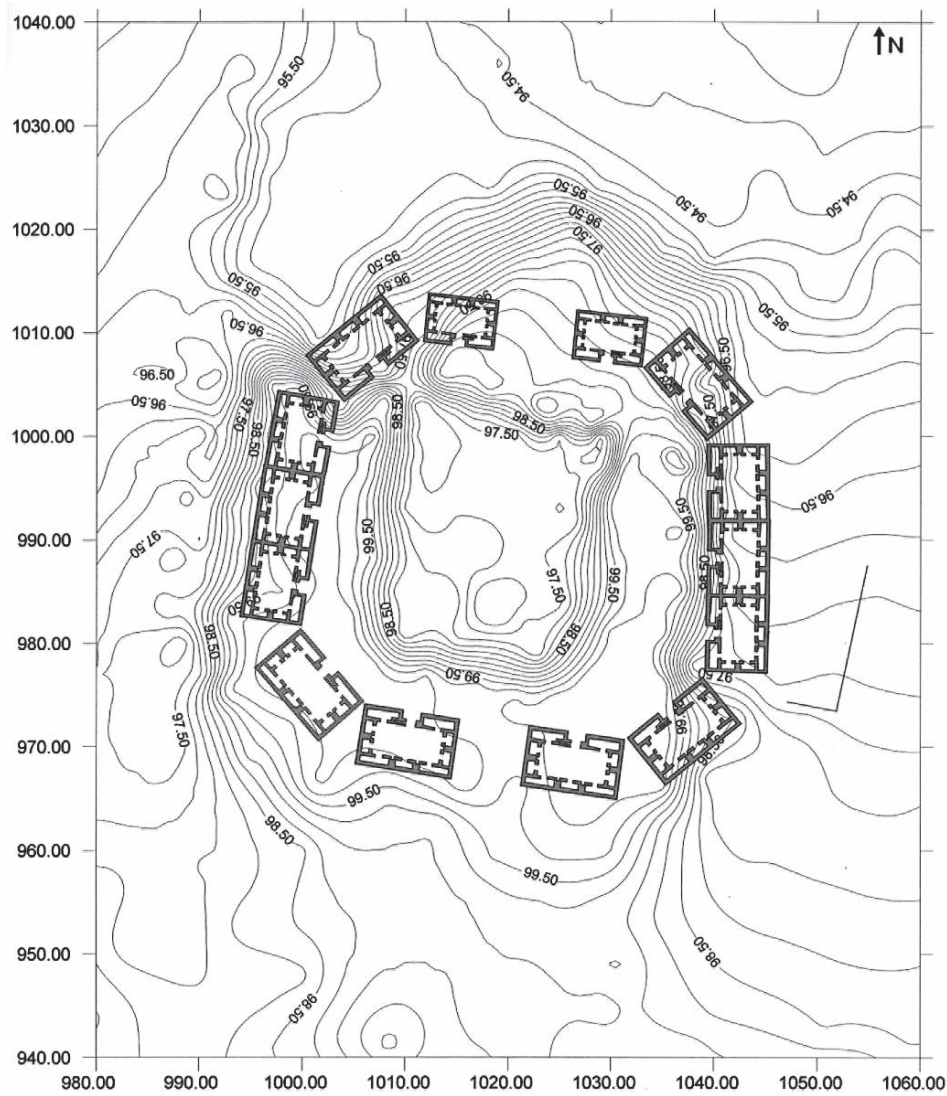


Figure 28.4. Map of Middle Formative structures at Chiripa. (William T. Whitehead)

Turning to the northern basin, Qaluyu flourishes and expands, with architecture shaped in the form of animals, (S. Chávez 1992; Kidder 1956). Clark Erickson (personal communication, 1999) has reported Formative materials from the site of Pancha, on the northwest shore of the lake. This large site has a stone-lined platform mound. It is geographically associated with raised fields. It has absolute dates ranging between 800 and 600 BC. There are iconographic influences from the south (Chiripa) in the northern settlements during this time, as well as from the western coast. These stylistic influences are exhibited in the lower levels of Pukara and Qaluyu (Cohen 2001). Slightly south of Qaluyu, these sites encompass the beginning of the Cusipata phase at Pukara (K. Chávez 1977). The Cusipata phase (500 to 20 BC) witnessed the first clear civic building at Pukara (S. Chávez

1992; Mujica 1987; Wheeler and Mujica 1981:26–29). The sacred region at Pukara contains Qaluyu and Cusipata pottery, discovered first in the sunken enclosures (Wheeler and Mujica 1981; K. Chávez 1977). Pukara continues on into the late Formative with increased elaboration.

During the Middle Formative and Late Formative I times, the figures cut into stone tend to be anthropomorphic, focused on human heads or whole bodies, often with two sexes on the same stone, heads at either end of the body or four appendages emanating out of one head, again symbolic for associated energies. These styles were categorized by Karen and Sergio Chávez with the Quechua term, “Yaya-Mama” (K. Chávez 1988; S. Chávez and K. Chávez 1975); Portugal Ortíz used the Aymara term “Pa’Ajano” (1981) as did Browman writing “Pajano” (1972, but also see Browman 1995). These terms refer to the more elaborate back-to-back carved stone figures of male and female images. This group of images imbues a sense of organic union, fertility and ancestral ties, with more emphasis on humans than in the earlier images, albeit continuing on in a surreal manner. These images have been found within sunken enclosures and also in the later, Formative stepped platforms (Stanish 2003).

Based on their research on the Copacabana Peninsula, Karen and Sergio Chávez suggest that domestic houses were removed slightly from the sacred ritual core, in addition to occurring at small farmstead settlements. They uncovered oval semi-subterranean stone structures of about 8 m × 5 m on a terrace about 100 m from the Ch’isi semi-subterranean enclosure, dating to 220 BC, at the end of this Middle Formative phase. While we are unclear about the full range of activities that transpired in the domestic areas at this time, due to little in situ excavation of domestic life, there is evidence of food preparation and storage. The domestic rubbish pits that the Taraco Archaeological Project has excavated show a different assemblage than those associated with the ritual areas. The domestic pits are filled with fish, bones, charred remains, and many large and undecorated cooking pots. The ceremonial rubbish includes more painted pottery and fewer cooking pots (Steadman 2002). Food evidence tells us that these populations were supporting themselves on local produce and even increasing their production to host feasts that aided the more intensive social interactions that were developing.

At this time, the southern sites tend to have more painted wares than do the northern sites. If painted wares reflect ceremonial/sacred/ public activities, then the presence of such painted wares supports the thesis of earlier escalation of ceremonialism in the southern basin and on the Taraco Peninsula in particular. Although we cannot determine who controlled these feasts and ceremonies yet, we are learning more about where such events might have taken place and what they entailed.

Late Formative (Tiwanaku I/III)

The Late Formative (250 BC–AD 475) (Tiwanaku I/III, also called the Qalzasaya and Qeya phases) begins with a scalar change in centrifugal influence. Not only did the centers continue to flourish as independent but interactive entities (this is best illustrated by their divergent artifact styles: see Steadman 1995; Bandy 2003; Stanish 2003), but the local populace gravitationally turned their attention to larger centers, at least ceremonially; there is a consolidation of larger, multiple-community ceremonial centers. These centers gained stylistic influence not only over the smaller centers and their populace, but clearly began to produce ever more elaborate performances for the visitors with increasingly more powerful imagery and ritual paraphernalia.

The Late Formative is divided into two sub-phases, I and II (Table 28.1). The Late Formative I (250 BC-AD 300) saw the rise and collapse of the northern center, Pukara, the coalescing of the western Sillumocco sphere (also called the Moyopampa Complex; de la Vega 2005), the Taraco Peninsula centralized at Kala Uyuni and Sonaje (Bandy et al. 2004; Hastorf et al. 2005), the Santiago de Huatta Peninsula becoming one entity (Lémuz 2001), and the coalescence of the southwestern altiplano center Khonko Wankane, in addition to the rise of other polities around the lake shore. The most prominent of these centrifugal trajectories however was the expansion of Tiwanaku as the major center in the southern basin.

In Late Formative I, long-distance trade became more prevalent, reflected by the artifact styles that were more broadly distributed. In addition to the intensification of trade in the Late Formative I, agriculture and herd production also intensified.

Within Late Formative I, between 250-100 BC, political and social change escalated throughout the basin. The climate was warming and getting wetter, the lake was rising again, although it had been changeable throughout the Middle Formative as well. Ceremonial settlements grew in size and architectural sophistication. Community engagement was more materially manifest, with certain centers having increasingly elaborate architecture. These material energies were channeled to impress locals and surrounding visitors through refurbishing and building larger stepped platforms, covered with cut stone and containing elaborate chambers for storing goods and ancestors. Pottery (and probably weavings) was more elaborately made, with new imagery that was circulated around the southern Andes. The imagery was more overtly powerful, with “power over” dominating the “power to” imagery. The ceramic assemblage was more complex; with new forms of braziers, serving bowls and cups suggesting more concern with feasting and presentation. Central in this elaboration of presentation and place was the dominance of Pukara, located off the northern lakeshore. This zone, rich in herding pasture-land, clearly was in intensive contact with the north, into the Canis and Canchis ethnic area, on up to the Peruvian north coast (Cupisnique) as well as to the west and the Paracas Peninsula and the Ica and Nazca valleys. Its size, images and architecture place Pukara at the center of all settlements in the northern basin.

The development of a large Pukara polity is based on the increased elaboration of the stepped platforms, built up the hillside, with multiple sunken enclosures on the top (Figure 28.5; K. Chávez 1988; Klarich 2004). Accompanying this larger ceremonial form was a shift to this “power over” imagery, with the new dominance of disarticulated human heads, bodies, males with knives and front-faced deities (S. Chávez 2002). Yet accompanying this aggressive image is one of fecund power, seen in front faced women holding flowers and camelids. These new images suggest an increased emphasis on status differentiation, ritual elaboration, esoteric knowledge, power over others, and identity building (Helms 1979, 1998). While we, as yet, have not documented specific images with specific trade routes, ongoing research should inform us of such regular interaction. It is hoped that the sources of stone hoes, food plants, wood, and hallucinogenic plants will clarify these trade routes, including those to the east.

These Pukara images, found on ceramics and carved stone, incorporated the powerful images of a shamanistic religious cult that is generally associated with the acquisitional power gained from dead enemies, most notably seen in trophy head images on the south coast (Proulx 1999, 2001; Silverman and Proulx 2002; S. Chávez 2002; Arnold and Hastorf 2008). While heads had been included in the earlier Pa’Ajano images, in the Middle Formative times illustrated in Figure 28.3, they took on a more ominous and overly powerful dimension, as the heads were now held by kneeling feline masked humans (chachapuma images), suggesting a strong sense of unequal power over others, or at least increasingly



Figure 28.5. View of Pukara platform, whose high retaining walls run the length of most of the picture, but have been exposed by excavation in the center only. (photo by William H. Isbell)

powerful ritual specialists. These images, as well as the carved heads found in niches at Pukara (Mujica and Wheeler 1981), suggest that the ritual leaders were continuing to focus on ancestor veneration as a lynchpin to community formation.

It is increasingly clear that Tiwanaku, off the southern shore of Lake Titicaca, was also actively building more elaborate ceremonial edifices. The site was not located up against hills, but rather built on a flat plain. The Tiwanaku inhabitants early on built an elaborate semi-subterranean enclosure, with many carved tenon heads embedded in its four walls (Figure 28.6; Ponce Sanginés 1990). Recent scholars have written on this topic, suggesting that these heads, perhaps like those found at Pukara, represented local ancestral leaders, brought together into the greater alliance of the expanding center (Hastorf 2003; Couture 2004). These heads are naturalistic and diverse suggesting a range of different people [Note 2]. Thus, Tiwanaku and Pukara were both escalating their regional influence through pomp and circumstance, ceremony and feasting, harkening back to the power of the venerable dead. Tiwanaku residents later also joined the basins civil ceremonial forms with a human made mountain seen in the Akapana stepped mound.

This trajectory peaked during the last 400 years of the Late Formative period (AD 100–475), with several central sites gaining prominence over broader areas during this time. In the northern Titicaca basin the site of Pukara had regular trading ties to the Nazca and Cuzco valleys (Valcarcel 1935; Rowe and Brandel 1969; Mujica 1978, 1987; Wheeler and Mujica 1981; Conklin 1983; S. Chávez 2002). In the southern basin, Tiwanaku (Tiwanaku I phase) superseded earlier centers, such as Chiripa, Kala Uyuni, Khonko Wankane and Santiago de Huatta. By AD 300 Tiwanaku had become an active trading center to the south into the Chilean coastal area (San Pedro de Atacama) (Rivera 1991; Rodman 1992), perhaps shifting the balance of trade routes southward out of the basin from the previous phase, which was oriented more to the north (Stanish 2003).



Figure 28.6. Partial view of the semi-subterranean enclosure at Tiwanaku showing tenoned heads. (Christine Hastorf)

This brings us to the Late Formative II phase (AD 300–475). These years witnessed Tiwanaku becoming a more formal ritual and political center as its residents began exercising more influence not only in the south but also in the northern lake basin. With this new level of integration came a reformulation of ceremonialism, and an ever increasingly formal ceremonial core. Tiwanaku's new buildings were oriented towards the sun's movements now, no longer towards the mountains and the moon (Leonardo Benetiz personal communication, 2005).

In the Qalasasaya phase and on into the Qeya times (AD 300–475), we begin to see evidence for more overt political authority, with controlling civic cults built upon the earlier religious foundations of incorporation and kin-group ancestor worship. This authority is reflected in the architecture at the centers, but mushroomed most at Tiwanaku. There is evidence for the intensification of several economic strategies throughout the Late Formative phase, including intensive pampa agriculture, a strong lacustrine economy of gathering, fishing, and herding (Erickson 1988, 1996; Graffam 1990). Once the lake stabilized, sometime around AD 200, and the hydrology was steady (Binford and Kolata 1996; Abbott, et al. 1997), a series of intensive economic strategies were developed, including raised fields, qochas (bofedales, artificially enlarged seasonal ponds used to feed and water camelids; Flores Ochoa 1987), and aqueducts that channeled hillside water for erosion control and irrigation.

It is during this time that Pukara waned, losing its trajectory of ceremonial building (Klarich 2004). Now, Tiwanaku was the largest center, with ever increasing influence

across not only the southern basin but also the northern region. Tiwanaku was not alone, however, as a range of well endowed centers existed to the north and south of Tiwanaku, with elaborate images in the Tiwanaku style (Bermann 1994; John Janusek, personal communication, 2005).

Domestic architecture continues to be rarely uncovered in the basin, due to a research focus on large architecture and the fact that these structures are ephemeral. Bermann's (1994) work at Lukurmata is an exception, where he uncovered rectangular houses. In 2005, John Janusek's team exposed a sequence of small circular structures at Khonko Wankane, providing us with a set of domestic houses (John Janusek, personal communication, 2005). These small structures contrast with the large enclosure that has also been uncovered over the past few years of work there, associated with very elaborate and large carved stone stelae. The Taraco Archaeological Project also has recently found one, round domestic structure at Kala Uyuni dating to this time period, approximately 4 m wide. These structures all provide evidence of food preparation and storage.

The Formative Period in the Titicaca basin culminates with the cultural development of the large-scale highland Tiwanaku polity with the extension of Tiwanaku's influence outside the Titicaca basin. This entity expanded throughout the south-central region between AD 475 and 500. By the end of the Formative, Tiwanaku dominated the region, culminating in its regional influence.

CONCLUSION

The people who settled in the Titicaca basin gained an increasing sense of place and ownership over time. Their separate polities developed authority and identity through demarcating and celebrating the sacred and the powerful on the landscape and the living ancestors. Intensification occurred in all subsistence realms, especially when the lake retreated. The landscape, architecture, and iconographic evidence of the Titicaca basin in the Formative Period portrays a picture of increasing unification by certain population clusters that channeled labor out of the web of nested kin/*ayllu* groups. The political evidence for these changes is seen in the religious manifestations and ancestor ideologies placed in the constructed ceremonial centers. Everything, including politics, seemed to be colored by ritual; ritual and its associated community feasting has always been a powerful force in politics throughout Andean prehistory (and history). Toward the end of this long sequence, the political structures bumped up against each other, causing a general shift from interaction to confrontation. Aggressive power became part of the iconic codes. And with this competition, came civic ceremonial elaboration that bred an increased sense of centralization, seen at sites like Pukara and Tiwanaku, but also at Lukurmata and Khonko Wankane (the discussion of Titicaca basin cultural development continues in Chapter 37). With evidence for group rituals and feasting, selective access to exotic goods, and labor for constructing stone edifices, the population was realigning itself from autonomy to hegemony, at the end of the renaissance of sustainability and autonomy.

ACKNOWLEDGMENTS This chapter is primarily based on recent archaeological research in which I have been involved, for which I am very grateful to Chip Stanish, John Janusek, Matt Bandy, Lee Steadman, Bill Whitehead, José Luis Paz and Kate Moore. The National Directorate of Archaeology in La Paz, Bolivia, especially Javier Escalante and Eduardo Pareja, have graciously allowed archaeological research to move forward. Chip Stanish has devoted

much time to informing me of the northern data upon which I have based much of my interpretations here. The National Science Foundation and the National Geographic Society have both funded my archaeological time in the region and for that I am especially grateful.

NOTES

1. Archaeologists working in the Titicaca basin use the Formative terminology rather than the Rowe-Menzel periods to which it would correspond (Rowe 1962; Lumbreras 1974a; Ponce Sanginés 1970, 1971, 1981: 13).
2. This is very different from the interpretation of the tenoned heads emplaced on the exterior temple walls of Chavín de Huántar. There the heads are placed on an outer surface [exposed and visible] and are clearly displaying transformations. At Tiwanaku the heads within an enclosure [gathered and protected] are all naturalistic and quite human (see Richard Burger's argument in Chapter 35 in this volume).

REFERENCES

- Abbott, Mark, Michael Binford, Mark Brenner, and Kerry Kelts, 1997, A 3500 14Cyr high-resolution record of water-level changes in Lake Titicaca, Bolivia-Peru. *Quaternary Research* 47: 169–180.
- Albarracín-Jordan, Juan, 1996, Tiwanaku settlement system: the integration of nested hierarchies in the lower Tiwanaku Valley. *Latin American Antiquity* 7 (3): 183–210.
- , and James Mathews, 1990, *Asentamientos Prehispánicos del Valle de Tiwanaku*, Vol. 1. Producciones CIMA, La Paz.
- Arnold, Denise Y. and Christine A. Hastorf, 2008, *Heads of State: Icons, Power and Politics in the Ancient and Modern Andes*. Left Coast Press, Walnut Creek CA.
- Bandy, Matthew S., 2001, Population and History in the Ancient Titicaca Basin. Ph.D. dissertation. Department of Anthropology, University of California, Berkeley.
- , 2004, Fissioning, scalar stress, and social evolution in early village societies. *American Anthropologist* 106 (2): 322–333.
- , Christine A. Hastorf, Lee Steadman, Katherine Moore, Melissa Goodman Elgar, William Whitehead, José Luis Paz, Amanda Cohen, Maria Bruno, Andrew Roddick, Kirk Frye, María Soledad Fernández, José Capriles Flores, Mary Leighton, 2004, Taraco Archaeological Project: Report on 2003 Excavations at Kala Uyuni. Submitted to the National Directorate of Archaeology, La Paz, Bolivia.
- , and Christine A. Hastorf (eds.), 2007, Kala Uyuni: An Early Political Center in the Southern Lake Titicaca Basin, 2003 Excavations of the Taraco Archaeological Project, Contributions of the Archaeological Research Facility, No. 64, Archaeological Research Facility, Berkeley.
- Bennett, Wendell, 1936, *Excavations in Bolivia*. Anthropological Papers of the American Museum of Natural History, Vol. 35. American Museum of Natural History, New York.
- Bermann, Marc, 1994, *Lukurmata: Household Archaeology in Pre-Hispanic Bolivia*. Princeton University Press, Princeton.
- Binford, Michael and Alan Kolata, 1996, The natural and human setting. In *Tiwanaku and its Hinterland: Archaeology and Paleoeconomy of an Andean Civilization*, edited by Alan L. Kolata, pp. 23–56. Smithsonian Institution Press, Washington, D.C.
- Browman, David L., 1972, Asiruni, Pukara-Pokotia and Pajano: Pre-Tiahuanaco south Andean monolithic stone styles. Manuscript in possession of the author.
- , 1978, The temple of Chiripa (Lake Titicaca, Bolivia). In *El Hombre y la Cultura Andina, III Congreso Peruano*, edited by Ramiro Matos Mendieta, pp. 807–813. Editorial Lasontay, Lima.
- , 1980, Tiwanaku expansion and altiplano economic patterns. *Estudios Arqueológicos* 5:107–120.
- , 1981, New light on Andean Tiwanaku. *American Scientist* 69 (4): 408–419.
- , 1984, Tiwanaku: development of interzonal trade and economic expansion in the altiplano. In *Social and Economic Organization in the Prehispanic Andes*, edited by David L. Browman, Richard L. Burger and Mario A. Rivera, pp. 117–142. British Archaeological Reports, International Series, No. 194. Oxford.
- , 1995, Pa-Ajanu: Formative Titicaca regional stela tradition. Paper presented at the 60th Annual Meeting of the Society for American Archaeology, Minneapolis.

- Bruno, Maria and William T. Whitehead, 2003, *Chenopodium* cultivation and Formative Period agriculture at Chiripa, Bolivia. *Latin American Antiquity* 14 (3): 339–355.
- Casanova, E., 1942, Dos yacimientos arqueológicos en la Península de Copacabana (Bolivia). *Antropología, Etnografía y Arqueología* 82: 333–407.
- Chávez, Karen Mohr, 1988, The significance of Chiripa in Lake Titicaca basin developments. *Expedition* 30 (3): 17–26.
- and Sergio Chávez, 1997, Remarks on “The Yayamama Project.” Symposium organized at the 62nd Annual Meeting of the Society for American Archaeology, Nashville.
- Chávez, Sergio, 2002, Identification of the camelid woman and feline man themes, motifs, and designs in Pucara style pottery. In *Andean Archaeology II: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 35–69. Kluwer Academic/Plenum Publishers, New York.
- and Karen Mohr Chávez, 1975, A carved stela from Taraco, Puno, Peru, and the definition of an early style of stone sculpture from the altiplano of Peru and Bolivia. *Ñawpa Pacha* 13: 45–83.
- Cipolla, Lisa M., 2005, Preceramic Period settlement patterns in the Huancané-Putina River Valley, northern Titicaca Basin, Peru. In *Advances in Titicaca Basin Archaeology-I*, edited by Charles Stanish, Amanda B. Cohen, and Mark S. Aldenderfer, pp. 55–63. Cotsen Institute of Archaeology, University of California, Los Angeles.
- Cohen, Amanda, 2001, Results of a settlement pattern survey in the Pucara Valley, northern Lake Titicaca basin, Peru. Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans.
- Couture, Nicole, 2004, Monumental space, courtly style, and elite life at Tiwanaku. In *Tiwanaku Riches and Ritual in the Andes*, edited by Margaret Young-Sanchez, pp. 126–149. Denver Art Museum.
- Dean, Emily and David Kojan, 2001, Ceremonial households and domestic temples: “fuzzy” definitions in the Andean Formative. In *Past Ritual and the Everyday*, edited by Christine A. Hastorf, pp. 109–135. Kroeber Anthropology Society, Department of Anthropology, University of California-Berkeley.
- de la Vega, Edmundo, 2005, Excavations at Sillumocco-Huaquina. In *Titicaca Basin Archaeology-I*, edited by Charles Stanish, Amanda B. Cohen and Mark S. Aldenderfer, pp. 115–134. Cotsen Institute of Archaeology at UCLA, Los Angeles, California.
- Erickson, Clark L., 1988, An Archaeological Investigation of Raised Field Agriculture in the Lake Titicaca Basin of Peru. Ph.D dissertation. Department of Anthropology, University of Illinois at Urbana-Champaign.
- , 1996, *Investigación Arqueológica del Sistema Agrícola de los Camellones en la Cuenca del Lago Titicaca del Perú*. PIWA, La Paz.
- Flores Ochoa, Jorge, 1987, Evidence for the cultivation of qochas in the Peruvian altiplano. In *Pre-Hispanic Agricultural Fields in the Andean Region: Proceedings of the 45th Congreso Internacional de Americanistas*, edited by William Denevan, Kent Mathewson, and Gregory Knapp, pp. 399–402. British Archaeological Reports, International Series, No. 359. Oxford.
- Frye, Kirk and Lee Steadman, 2001, Incatunuhuri: A case for early socio-political complexity in the Titicaca Basin. Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans.
- Graffam, Gray, 1990, Raised Fields Without Bureaucracy: An Archaeological Examination of Intensive Wetland Cultivation in the Pampa Koani Zone, Lake Titicaca, Bolivia. Ph.D. dissertation. Department of Anthropology, University of Toronto.
- Hastorf, Christine A. (ed.), 1999a, *Early Settlement at Chiripa Bolivia*. Contributions of the University of California Archaeological Research Facility, Number 57. Archaeological Research Facility, Berkeley.
- , 1999b, An introduction to Chiripa and the site area. In *Early Settlement at Chiripa Bolivia*, edited by Christine Hastorf, pp. 1–6. Contributions of the University of California Archaeological Research Facility, Number 57. Archaeological Research Facility, Berkeley.
- , 2003, Community with the ancestors: ceremonies and social memory in the Middle Formative at Chiripa, Bolivia. *Journal of Anthropological Archaeology* 22 (4): 305–332.
- , 2005, The Upper (Middle and Late) Formative in the Titicaca Region. In *Advances in Titicaca Basin Archaeology-I*, edited by Charles Stanish, Amanda B. Cohen, and Mark S. Aldenderfer, pp. 65–94. Cotsen Institute of Archaeology, University of California, Los Angeles.
- , Matthew S. Bandy, Emily Dean, Melissa Goodman, David Kojan, Mario Montaña, José Luis Paz, David Steadman, Lee Steadman and William T. Whitehead, 1997, *Proyecto Arqueológico Taraco: Excavaciones de 1996 en Chiripa, Bolivia*, submitted to Dirección de la Secretaría Nacional de Cultura-Instituto Nacional de Arqueología, La Paz, Bolivia.
- Hastorf, Christine A., Matthew S. Bandy, William T. Whitehead, Lee Steadman, Katherine Moore, José Luis Paz Soria, Andrew Roddick, Maria Bruno, Soledad Fernandez, Kathryn Killackey, Amanda Logan, Delfur

- Ullua, Luis Callisaya, José Capriles Flores, Emily Stovel, Ani Rooth and Xander Antonites, 2005, Taraco Archaeological Project: Report on 2004 Excavations at Kumi Kipa and Sonaje. Submitted to the National Directorate of Archaeology, La Paz Bolivia.
- Helms, Mary, 1979, *Ancient Panama: Chiefs in Search of Power*. University of Texas Press, Austin.
- , 1998, *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*. University of Utah Press, Salt Lake City.
- Klarich, Elizabeth Ana, 2004, From the Monumental to the Mundane: Defining Early Leadership Strategies at Late Formative Pukara, Peru. Ph. D. dissertation. Department of Anthropology, University of California-Santa Barbara.
- Kidder, Alfred, 1956, Digging in the Lake Titicaca Basin. *University Museum Bulletin* 20 (3): 16–29.
- Lémuz, Carlos, 2001, Patrones de Asentamiento Arqueológico en la Península de Santiago de Huatta, Bolivia. Tesis de Licenciatura en Arqueología, Universidad Mayor de San Andrés, La Paz.
- Lumbreras, Luis G., 1974, Los reinos post-Tiwanaku en el área altiplánica. *Revista del Museo Nacional* 40: 55–85.
- Mathews, James, 1995, A re-evaluation of the Formative Period in the southeast Titicaca Basin, Bolivia. *Journal of the Steward Anthropological Society* 23: 83–110.
- Mohr, Karen, 1966, An Analysis of the Pottery of Chiripa, Bolivia: A Problem in Archaeological Classification and Inference. Master's thesis. Department of Anthropology, University of Pennsylvania, Philadelphia.
- Mujica, Elias, 1978, Nueva hipótesis sobre el desarrollo temprano del altiplano del Titicaca y de sus áreas de interracción. *Arte y Arqueología* 5–6: 285–308.
- , 1987, Cusipata: Una fase pre-Pukara en la cuenca norte de Titicaca. *Gaceta Arqueológica Andina* 13: 22–28.
- Niles, Susan, 1987, The temples of Amantaní. *Archaeology* 40 (6): 30–37.
- Paz Soría, José, 1999, Excavations in the Llusco Area. In *Early Settlement at Chiripa Bolivia*, edited by Christine A. Hastorf, pp. 31–36. Contributions of the University of California Archaeological Research Facility, Number 57. Archaeological Research Facility, Berkeley.
- Platt, Tristan, 1986, Mirrors and maize: the concept of Yanantin among the Macha of Bolivia. In *Anthropological History of Andean Politics*, edited by John V. Murra, Nathan Wachtel and Jacques Revel, pp. 228–259. Cambridge University Press, Cambridge.
- Ponce Sanginés, Carlos, 1970, *Las Culturas Wankarani y Chiripa y Su Relación con Tiwanaku*. Publicación No. 25. Academia Nacional de Ciencias de Bolivia, La Paz.
- , 1971, La cerámica de la época I de Tiwanaku. *Pumapunku* 2: 7–28.
- , 1981, *Tiwanaku: Espacio, Tiempo y Cultura. Ensayo de Síntesis Arqueológica*. Editorial Los Amigos del Libro, La Paz.
- , 1990, *El Templo Semisubterráneo de Tiwanaku*. Editorial Juventud, La Paz.
- Portugal Ortíz, Max, 1981, Expansión del estilo escultórico Pa-Ajanu. *Arte y Arqueología* 7: 149–159.
- , 1992, Aspectos de la cultura Chiripa. *Textos Antropológicos* 3: 9–26.
- Proulx, Donald, 1999, Nasca headhunting and the ritual use of trophy heads. In *Nasca, Geheimnisvolle Seichen im Alten Peru*, pp. 79–87. Museum für Volkerkunde, Vienna.
- , 2001, Ritual uses of trophy heads in ancient Nasca society. In *Ritual Sacrifice in Ancient Peru*, edited by Elizabeth P. Benson and Anita G. Cook, pp. 119–136. University of Texas, Austin.
- Rivera, Mario, 1991, Pre-Tiwanaku developments in northern Chile. Paper presented at the 56th Annual Meeting of the Society for American Archaeology, New Orleans.
- Rodman, Amy, 1992, Textiles and ethnicity: Tiwanaku in San Pedro de Atacama, north Chile. *Latin American Antiquity* 3 (4): 316–340.
- Rowe, John H. 1962, Stages and periods in archaeological interpretation. *Southwestern Journal of Anthropology* 18 (1): 40–54.
- and Catherine Brandel, 1969, Pucara pottery designs. *Ñawpa Pacha* 7: 1–16.
- Spahni, J.-C. 1971, Liex de culte precolombiens et actuels de departement de Puno (Perou). *Zeitschrift für Ethnologie* 62 (2): 217–233.
- Silverman, Helaine and Donald Proulx, 2002, *The Nasca*. Blackwell, Oxford.
- Stanish, Charles, 1994, A new view of the Upper Formative Period in the Titicaca Basin. Paper presented at the Northeast conference of Andean Archaeology and Ethnohistory, Pittsburgh, Pennsylvania.
- , 1997, Nonmarket imperialism in the prehispanic Americas: the Inka occupation of the Titicaca Basin. *Latin American Antiquity* 8: 195–216.
- , 2002, Tiwanaku political economy. In *Andean Archaeology I: Variations in Socio-political Organization*, edited by William H. Isbell and Helaine Silverman, pp. 169–198. Kluwer Academic, New York.

- _____, 2003, *Ancient Titicaca: The Evolution of Social Power in the Titicaca Basin of Peru and Bolivia*. University of California Press, Berkeley.
- Steadman, Lee H., 1995, Excavations at Camata: An Early Ceramic Chronology for the Western Lake Titicaca Basin, Peru. Ph.D. dissertation. Department of Anthropology, University of California, Berkeley.
- _____, 1999, The ceramics. In *Early Settlement at Chiripa Bolivia*, edited by Christine A. Hastorf, pp. 61–72. Contributions of the University of California Archaeological Research Facility, Number 57. Archaeological Research Facility, Berkeley.
- _____ and Christine A. Hastorf, 2001, Construction for the ancestors: the creation of territory and society in the Middle Formative at Chiripa. Paper presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans.
- Valcarcel, Luis, 1935, Litoesculturas y cerámica de Pukara. *Revista del Museo Nacional* 4: 25–28.
- Wheeler, Jane and Elias Mujica, 1981, Prehistoric pastoralism in the Lake Titicaca Basin, Peru. Final project report for the 1979–80 field season submitted to the National Science Foundation, Washington, D.C.
- Whitehead, William T., 1999, Choquehuanca - un recinto semi-subterráneo de Chiripa Medio: excavaciones e interpretaciones, In *Proyecto Arqueológico Taraco: Excavaciones de 1998 en Chiripa, Bolivia*, by Christine Hastorf, Matthew S. Bandy, Rene Ayon, Emily Dean, Miriam Doutriaux, Kirk Frye, Rachel Goddard, Don Johnson, Kate Moore, José Luis Paz, Daniel Puertas, Lee Steadman, and William Whitehead. Submitted to the Dirección Nacional de Arqueología y Antropología de Bolivia.

Paracas and Nasca: Regional Cultures on the South Coast of Peru

DONALD A. PROULX

The south coast of Peru was the nucleus of two important regional cultures that are exemplary of non-state sociocultural complexity: Paracas during the Early Horizon (ca. 700 BC—AD 1) and Nasca in the Early Intermediate Period (ca. AD 1—700). Geographically, these cultures extended for approximately 375 km along the desert coast, from the Cañete Valley in the north to the Acarí Valley in the south (Figure 29.1). This arid strip of land, sandwiched between the foothills of the Andean Mountains to the east and the cold waters of the Pacific Ocean to the west, was made habitable by several river systems carrying water from the high Andes; all but the Ica River run east-to-west. Irrigation farming provided the main subsistence for these cultures, supplemented by fishing and hunting. This chapter provides an overview of these two ancient societies, which figure prominently in discussions of Central Andean prehistory. The reader wishing a more comprehensive survey should consult, among other works, Paul (1990, 1991), Tello (1959), Tello and Mejía Xesspe (1979), Proulx (1968, 2006), Silverman (1993, 2002) and Silverman and Proulx (2002).

PARACAS

In 1925, motivated by the appearance of magnificent textiles on the art market, said to have been looted from sites on the Paracas Peninsula, Julio C. Tello, Toribio Mejía Xesspe and colleagues began excavations on and around a hill on the peninsula known as Cerro Colorado. Habitation sites were found on the north side of Cerro Colorado and at the nearby Arena Blanca site located along the littoral of Paracas Bay (Figure 29.2). Best known to scholars are the beautiful embroidered textiles excavated by Tello and Mejía Xesspe from graves at several sites (Cavernas, Wari Kayan Necropolis, Cabeza Larga; see Tello 1959 and Paul 1990 for color illustrations of some of this spectacular material; Figure 29.3). The name “Paracas” is derived from a Quechua word for the wind-driven sand storms that characterize the Paracas Peninsula, located between the Pisco and Ica valleys (Figure 29.1).

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

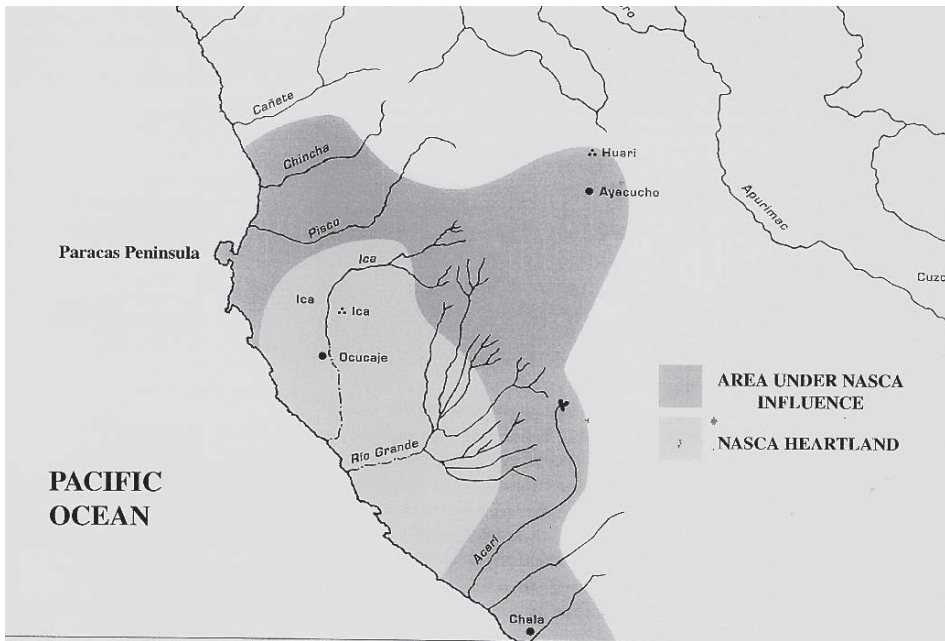


Figure 29.1. Map of the south coast of Peru showing the various river valleys and Paracas Peninsula. The map also shows the Nasca Culture core area and area of influence. (Donald A. Proulx)

In archaeological terms, Paracas can refer to a culture (actually two cultures: Paracas Cavernas followed by Cavernas Necropolis), a textile style (again with two cultural-chronological iterations: Paracas Cavernas and Paracas Necropolis), and a ceramic style (and again, Paracas Cavernas and Paracas Necropolis, which some scholars call Topará).

The origins of the Paracas culture are unclear. The local ceramic style appears to have been influenced by religious iconography emanating from the Chavín culture of northern Peru (see Chapter 35 in this volume; Figure 29.4), either directly (Cordy-Collins 1976) or indirectly, by the spread of a religious cult (Patterson 1971). Chavín religious motifs have been found on painted textiles said to come from Karwa (Cordy-Collins 1976) near the Paracas Peninsula, as well as on the pottery dating to the earlier phases of the Paracas culture (see especially Menzel, Rowe and Dawson 1964).

Chronology

A chronological sequence, based on pottery from the lower Ica Valley, seriates this local Paracas variant, called Ocucaje, into 10 phases (Menzel, Rowe and Dawson 1964). Today scholars argue that the first two phases do not exist (Figure 29.4), and therefore that the Paracas style actually begins in Phase 3 (ca. 800-700 BC) (Silverman 1991: 352). Chavín influence was strongest during the earlier Paracas phases, 3 through 7. By Phase 8, the local pottery had replaced most of the Chavín influences with new motifs including the “Oculate Being” (a large-headed creature with owl-like eyes; see Menzel, Rowe and Dawson 1964: fig. 43), felines, birds, and humans. By Phase 9 (ca. 300 BC), significant changes in the social order were occurring in the Pisco and Ica valleys. The local “Paracas” pottery was gradually replaced by three distinct styles, each having different cultural affiliations.



Figure 29.2. Major burial areas discovered by Julio C. Tello and his team on the Paracas Peninsula in the late 1920s. The map is reoriented and adapted from Tello and Mejía Xesspe (1979: fig. 78), on which no effective scale was given, but the area covered by this map is approximately 1.2 km (N-S) x 1 km (E-W).

Paracas Cavernas

On several terraces above the Cerro Colorado settlement, Tello and Mejía found bottle-shaped underground chambers, each containing multiple mummy bundles of both sexes and all ages. They named the culture associated with these tombs Paracas Cavernas. The Paracas Cavernas mummies were wrapped in rather ordinary textiles, but the brightly colored pottery associated with them was decorated with motifs delineated with incised



Figure 29.3. Fragment of a Paracas Necropolis textile. (Courtesy: Krannert Art Museum, University of Illinois at Urbana-Champaign)

outlines and painted with post-fired resin paints [Note 1], apparently a continuation of the earlier “Paracas” tradition found in the Pisco-Ica area. Paracas Cavernas pottery was decorated with several colors: red, yellow, brown, black and white. The white pigment, probably derived from a chalky kaolin clay source, was particularly fugitive, often flaking off the surface of the vessel (Figure 29.5). Other pigments were thickly applied, but were not fused to the surface of the vessel and thus were affected by abrasion from everyday use. The most common vessel shapes are bowls, double spout bottles, head and spout bottles (Figure 29.5), ollas and collared jars (see Menzel, Rowe and Dawson 1964: figs. 20–22). Contemporary with the resin painted pottery were vessels with negative painted (resist)



Figure 29.4. This ceramic vessel was originally used as a type-specimen of the first Paracas phase (Menzel, Rowe and Dawson 1964: 9). From the collection of Fred Olsen, the exact provenience of the piece is unknown, but is said to have been the Ica Valley. Even if found there, it is “Chavinoid” in style (Burger 1988: 107-108, fig. 4.6). (Courtesy: Krannert Art Museum, University of Illinois at Urbana-Champaign)

designs, usually in the form of multiple dots, cross-hatched lines, and vertical striping (Silverman 1991: 357). Paracas Cavernas textiles were often decorated with “interlocking snake and fishlike figures with triangular heads and serrated bodies as well as well as felines and human figures” structurally woven into the design rather than embroidered (Silverman 1991: 360).

Geographically the Paracas Cavernas ceramic tradition is strongest in the lower Ica Valley in the area of the Ocucaje basin. Most of the existing collections of this style are



Figure 29.5. A Paracas Cavernas style vessel, with head (“blind spout”) and spout shape (a variation of the typical double spout and bridge bottle). It shows the fugitive quality of the white pigment as well as the post-fired painting and incised line technology of this style. (Courtesy: Krannert Art Museum, University of Illinois at Urbana-Champaign)

from Ica, and some scholars argue that it originated there. Menzel, Rowe and Dawson (1964) used the Ica Valley pottery for their seriation of the Paracas style. As for other areas, it was once believed that Paracas Cavernas pottery was intrusive but insignificant in the Río Grande de Nazca drainage, based on surface survey data from the Ingenio and middle Grande valleys (Silverman 1994); rather, Silverman (1994) defined an Early Horizon style which she called Tajo, representing an indigenous Formative Period culture in the northern part of the drainage. More recently, however, Markus Reindel and Johny Isla have surveyed the Palpa, Viscas and upper Grande area in the Río Grande de Nazca drainage where they recorded many Early Horizon sites containing Paracas ceramics (Isla et al. 2003) and their excavations at a site named Jauranga yielded over 5,500 sherds ranging from Early Horizon phases 5 through 10.

Paracas Necropolis

On the north side of Cerro Colorado, Tello discovered a quite different burial pattern. At this location, which he named the Wari Kayan Necropolis, he and his colleagues found a large subterranean structure (see discussion in Paul 1990: 25–30) which ultimately yielded 429 mummy bundles, each wrapped in elegant embroidered textiles, most covered with

elaborate iconography executed in a large variety of vibrant colors (Figure 29.3). Realizing the differences of these burials from those of the bottle-shaped graves, Tello named this culture Paracas Necropolis. These were the textiles that had initially drawn him to the site—textiles that were to become world famous due to the technical skill of the weavers. Building on the seminal work of Jane Dwyer (1971, 1979), Paul (1991:17) arranged these textiles into three categories: linear, broad line, and block color. The first two, she argued, date to the end of the Early Horizon (Phase 10), and the latter to the first two phases of the Early Intermediate Period. Illustrated examples of these three forms can be found in Dwyer (1979, Paul (1990) and Sawyer (1997) *inter alia*.

The most common form of these textiles were mantles with an average length of 4 to 5 feet (1.3 m). Other items of clothing included tunics, turbans, headbands, and skirts (Paul 1990: 47–64). The Paracas Necropolis mummy bundles found at Wari Kayan contained the cadavers of high status males, flexed in a seated position, and placed in a flat basket. The body was wrapped with multiple layers of plain cloths as well as the elaborately woven textiles, the latter including mantles, turbans, gold ornaments, and feather headdresses (see Paul 1990: figs. 4.1—4.12). Other Necropolis burials were found in the Arena Blanca area. Because of the large number of opulent burials, it is believed that Wari Kayan was an elite cemetery and that many of the bodies had been transported to the Paracas Peninsula from a wide area, though this is still debated (see Silverman 1991).

Topará

The pottery associated with the Paracas Necropolis mummy bundles was generally thin-walled and undecorated (Figure 29.6); these vessels are now known as the Topará style. Today the consensus among scholars is that Topará was a distinct culture that originated in the valleys of Cañete and Chíncha to the north (Peters 1997; Figure 29.1). It had contact with and influence on the Paracas Necropolis culture, and its influence continued into the Early Intermediate Period where examples exist in phases 1 and 2 of the Nasca culture, especially in the upper Ica Valley (Massey 1986). Chronologically, Paracas Cavernas precedes the Necropolis culture and, as will be seen, Necropolis evolved into the Nasca Culture. Topará was contemporary with both Necropolis and Nasca Phase 1, co-existing with and influencing both. Ann Peters, who surveyed the Pisco Valley and excavated at the Topará habitation sites of Chongos and Pachanga, maintains that Topará and Paracas Necropolis represent two ethnic groups with separate boundaries and distinct burial traditions and locations (1997: 883ff). The Topará culture was more organized and centralized than Paracas Necropolis, and gradually replaced it in the Pisco Valley and on the Paracas Peninsula by the end of the Early Horizon. However it continued to have strong influence in the Ica Valley in the first century of the Early Intermediate Period.

Settlement Patterns and Distribution

Although past research has focused on Paracas Peninsula burials and ceramics, researchers are turning to an examination of settlement patterns, socio-political organization, religious beliefs and material culture of the various Paracas cultures. A small Paracas Cavernas habitation area was found by Tello on the north side of Cerro Colorado. Silverman (1991: 397) speculates that the bodies found in the cavernas tombs came from this settlement. The site of Arena Blanca along the littoral below Cerro Colorado dates primarily to the Paracas Necropolis period. The habitations cover an area measuring 0.5 km² and can be divided

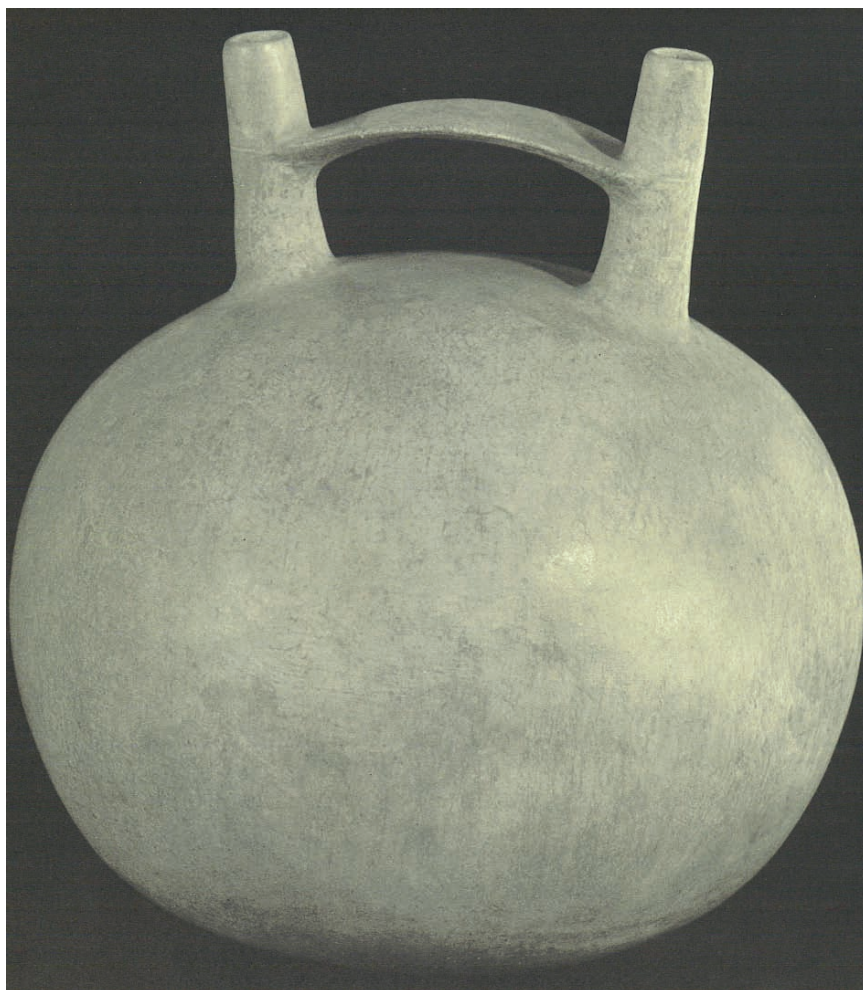


Figure 29.6. Topara style bottle. (Courtesy: Krannert Art Museum, University of Illinois at Urbana-Champaign)

into twenty sectors (Tello and Mejia 1979: 251ff). The structures were constructed of cobblestones set in a mud mortar and were associated with preserved cultivated plants, cotton nets, slings, baskets, etc. indicating the domestic nature of the site. The earliest Necropolis burials likely came from this population, which seems to have had a strong Topará component (Silverman 1991: 398). Eventually the Arena Blanca habitation zone was abandoned and thereafter was used as a Topará burial ground (Silverman 1991: 398).

The best information on Paracas settlement patterns comes from the Ica Valley. The upper valley was surveyed by Sarah Massey (1986) and the lower valley by Anita Cook (1999) and Lisa De Leonardis (1991, 1999). Settlements from the entire Paracas sequence were found in Ica. Massey (1986: xv) recorded 32 sites in the upper valley dating to this period, all of which she believed belonged to the Topára culture. These sites began as small nuclear hamlets, which gradually became more complex. She argued that the upper and lower valleys were distinct entities with different cultural traditions but were involved in the exchange of goods.

In the lower valley, Cook and De Leonardis focused on an area called Callango, stretching 74 km along the river. Two hundred sites were recorded of which 91 (42%) had pottery of one or more Paracas phases (Cook 1999: 69). Five types of sites were delineated: public (ceremonial or administrative), habitations, cemeteries, hilltop redoubts, and sites with fragmentary evidence. De Leonardis (1997) was the first scholar to analyze Paracas domestic architecture. Houses were constructed of wattle and daub (*quincha*) and/or adobe, with a central hearth. These sites were distributed on both sides of the river until phase 9 when they were clustered on the east side. The earlier sites (phases 3–7) were small to substantial in size, 0.25 to 60 ha; in phase 8 they became agglutinated and larger (60 to 100 ha) (De Leonardis 1991).

During her survey, Massey (1986) recorded the 100-ha ceremonial site of Animas Altas in Callango, which became the center of political activity. The site has at least thirteen mounds, other small buildings, a large rectangular plaza and some storage structures (Massey 1991: 324–326, fig. 8.3). The interior walls of one small mound were discovered to be engraved with an elaborate frieze depicting anthropomorphic figures (Massey 1991: fig. 8.4).

In the Río Grande de Nazca drainage, David Browne (1992) and Helaine Silverman (1994, 2002) conducted surveys of the Palpa and Ingenio valleys respectively. Both found and recorded Early Horizon sites, most of these small villages and cemeteries. As noted above, the subsequent work of Isla and Reindel (2003) recorded additional Paracas sites in Palpa and has resulted in a very different interpretation of the presence and significance of Paracas in the northern Nazca area.

Socio-Political Organization

The political organization of Paracas society was likely to have been in the form of local chiefdoms, not only between valleys but also within a valley, such as Ica. These polities had powerful shamans either as their leaders or sharing power with a secular chief. The Paracas people practiced several forms of skull deformation, perhaps as a sign of rank. The power and prestige of these individuals is reflected in their transport to and burial on the Paracas Peninsula. Indeed, the Paracas Necropolis cemetery was the resting place for elite males from the Chincha, Pisco and Ica valleys (Isla 2006: 53). Meanwhile, in Ica, power shifted from the Callango basin to Ocucaje with a concurrent increase in conflict between local groups in phase 10 (Cook 1999: 82). In the Pisco Valley the Paracas tradition was replaced by Topará at the end of the Early Horizon. Conflict or warfare between ethnic groups or chiefdoms is evidenced by weapons including obsidian knives, trophy heads, and battle wounds to the head. Trephination (the surgical removal of a piece of the skull) was used to relieve pressure on the brain and to attempt to heal the wound.

Religion

Paracas religion can be partially reconstructed not only from the burials, but also from the complex iconography displayed on their textiles and pottery. Many of the huge mantles found on the mummies in the Paracas Necropolis cemetery are covered with multiple versions of anthropomorphic figures holding weapons, plants, trophy heads and other objects (for illustrations see Lavalle 1983). Snake-like streamers emerge from their mouths or heads; some have wings as if flying or gliding through the air. These motifs are interpreted as symbols or images of supernatural beings originally conceived in myths

(Kauffmann Doig 1999), while other scholars believe they represent ancestors in the process of transformation (Frame 2006: 219–220). Other motifs include felines, birds and killer whales, many with anthropomorphic features. The “Oculate Being” may have been the prototype for the supernatural creatures on the textiles, which in turn reappear on Nasca ceramics. The ritualistic taking of trophy heads was an important aspect of Paracas religion, which, like the later Nasca, was connected with agricultural fertility. As evidenced by gold mouth masks and other paraphernalia found in tombs, shamans, or impersonators, dressed in the costumes of supernatural creatures during rituals.

Material Culture

Aside from ceramics and textiles, Paracas material culture included fans made of feathers from tropical birds, ornaments of gold beaten into thin sheets and embossed, stone and shell beads, carved wooden objects, spear throwers, weaving implements, gourd containers, basketry, fishing nets, etc. The major technological accomplishment of this society was the intricate textiles they produced from wool and cotton. Their ability to dye the wool yarn with numerous bright colors, to produce textiles with 100 threads per inch, and to embroider them with such complex motifs is unequalled in the pre-Columbian world.

NASCA

Archaeologists have used a single technological change to mark the end of the Paracas tradition and the beginning of the Nasca culture: the replacement of post-fired resin painted pottery by slip painted ceramics [Note 2]. In most respects, Nasca was a continuation of the Paracas culture, including a common religion, warfare, trophy head-taking, textiles, etc. Paracas block color textiles continued into the early Nasca phases, including techniques such as double-faced embroidery, and the introduction of cross-unit looping (3-dimensional “needle knitting”) in the form of tabs and figures attached to the edges of textiles (Sawyer 1997; also see Bird and Bellinger 1954; Frame 1999). These colorful textiles were gradually replaced in the early phases by Nasca polychrome pottery, a change in the medium of expression. It is not known why there was a shift from brightly colored textiles to polychrome painted pottery on which to exhibit images of their supernatural creatures. This change took place over several generations, perhaps lasting as long as 150 years.

The heartland of the Nasca culture was the Río Grande de Nazca drainage [Note 3] and the Ica Valley to its north (Figure 29.1). At certain stages of its development, it influenced an area from the Cañete Valley to the north and the Ocoña, Camaná and Sihuas valleys in the Department of Arequipa to the south (Figure 29.1). Nasca dates to the Early Intermediate Period (AD 1—700), a time marked by the florescence of a number of regional cultures including Moche (see Chapter 36 in this volume) and Recuay (Lau 2000, 2002; see Chapter 51 in this volume) in northern Peru.

Nasca Pottery

The Nasca are most famous for their beautiful polychrome painted ceramics, colored in up to twelve different shades. Over time the Nasca perfected their ceramic technology, producing highly burnished, thin walled vessels. Just as their Paracas predecessors excelled in weaving, the Nasca produced (in my opinion) the most vibrant pottery in the ancient Americas.

Nasca pottery motifs included subjects that were both sacred and profane, naturalistic and abstract (see Proulx 2006). Among the naturalistic motifs are plants, animals, birds, fish and humans. The supernatural themes consist of anthropomorphized symbolic representations of nature spirits, often a composite of features from a number of creatures. There are both three dimensional effigy vessels (supernatural creatures, humans, animals, etc.) and more utilitarian shapes such as bowls, jars, plates, and goblets. The most prestigious form of vessel was the double spout bottle, a globular jar having two small spouts on top, connected by a clay handle (Figure 29.7). It was on this vessel form that some of the most intricate supernatural creatures were painted (Figure 29.8). Other ceramic objects include musical instruments, such as pan pipes, drums, trumpets and whistles.

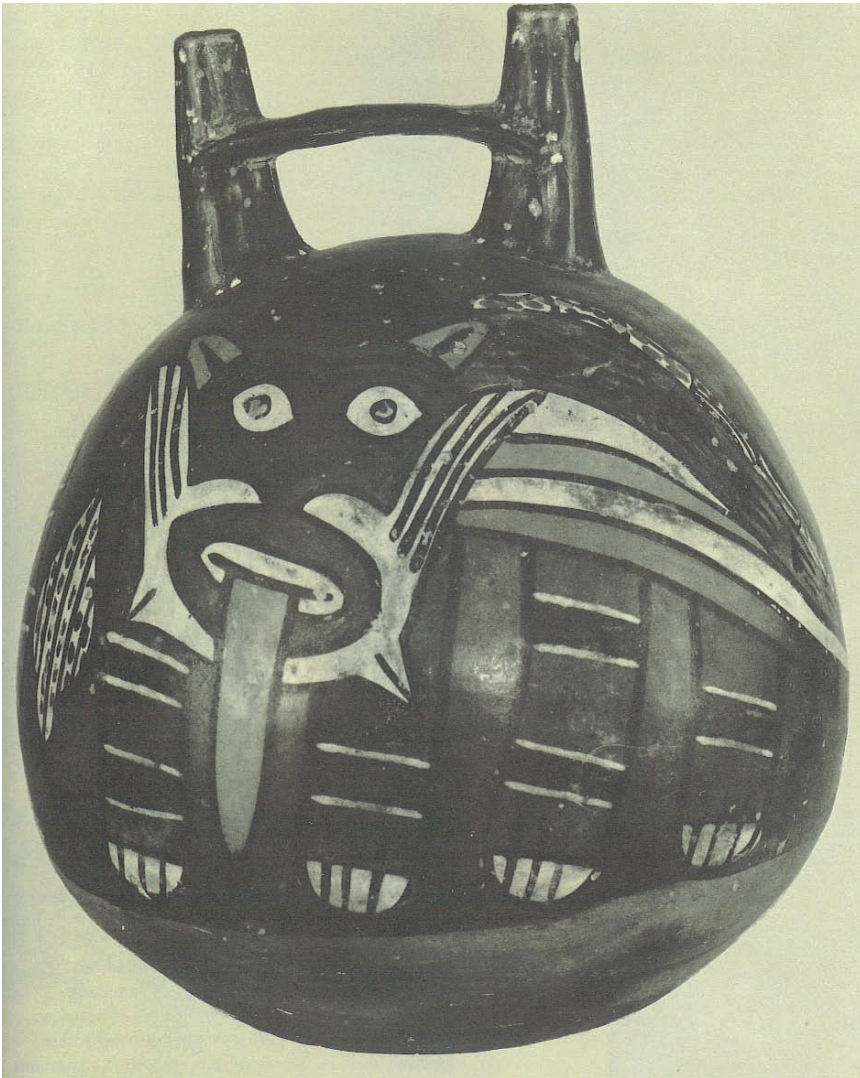


Figure 29.7. A Nasca double spout and bridge bottle. (Courtesy: Krannert Art Museum, University of Illinois at Urbana-Champaign)

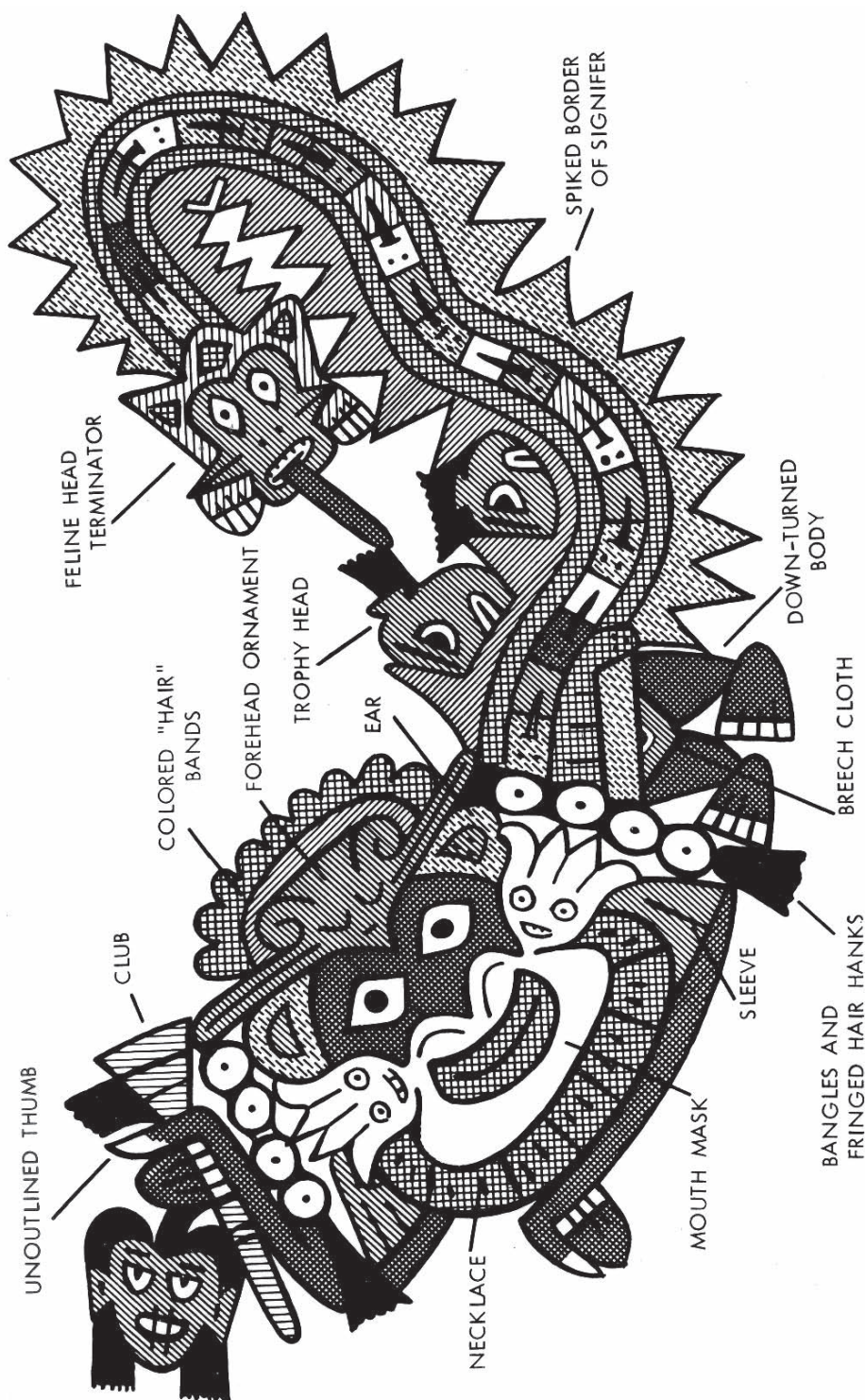


Figure 29.8. A version of the most intricate Nasca supernatural creature, the Anthropomorphic Mythical Being (AMB). (Proulx 1968: fig. 18)

Chronology

In the 1950s, Lawrence E. Dawson, in conjunction with his mentor John H. Rowe, at the University of California at Berkeley, subdivided the 700-year span of the Nasca culture into 9 phases. Phase 1 is often called “Proto-Nasca” because the pottery retained incised outlines on motifs, like that on Paracas ceramics, but painting was done with slip pigments. This phase may have started as early as 100 BC. Phases 2–4 (also called Early Nasca) were characterized by naturalistic or representational motifs, which Rowe called the “Monumental” strain. These phases date roughly from AD 1—300 AD. Phase 5 (Middle Nasca) was a time of cultural stress along with great innovation in the iconography. It is considered a transitional phase between Early and Late Nasca and dates to approximately AD 400. Phases 6 and 7 (Late Nasca) are marked by representational motifs with abstract elements added as part of the design (Roark 1965). Rays and tassels were appended to mythical creatures (Figure 29.9) producing an effect much like the baroque style in Europe. Rowe used the term “Proliferous” to describe the changes in the iconography. Dating between AD 500—650, these phases mark the effective end of the Nasca style.

Originally Rowe and Dawson argued that Phase 9 witnessed the end of the Nasca style with the introduction of strong influences from the highlands marking the beginning of the Middle Horizon. They referred to Phases 8 and 9 as “Disjunctive.” It is now believed that Phases 8 and 9 both date to the Middle Horizon due to the strong presence of traits introduced from the outside (Silverman 1988; Silverman and Proulx 2002: 35–37). The iconography on this early Middle Horizon pottery is very abstract, often containing condensed or degraded versions of earlier Nasca motifs.

Settlement Patterns

Surface surveys in the various tributaries of the Río Grande de Nazca drainage have revealed scores of Nasca habitation sites (Browne 1992; Proulx 1999 *inter alia*; Silverman 2002; Schreiber 1999). Silverman’s (2002) survey of the Ingenio Valley and the central portion of the Grande Valley, for instance, located sites from all phases, averaging from one to several hectares in size. Several sites were quite extensive, such as Site 220, a large Phase 1 habitation site located on a sizable terraced hillside covering 9.6 ha. Most Nasca sites, however, are small hamlets with houses constructed of wattle and daub or of cobble stones set in a mud matrix. Vaughn’s (2000) excavation at the Nasca habitation site of Marcaya revealed 23 self-sufficient households distributed in patio groups, similar to native villages today. Orefici’s (2006: 183) excavations at Pueblo Viejo also provide important data. More excavation of such sites needs to take place before a comprehensive picture can be made.

Nasca ceremonial sites are better known, the most familiar being Cahuachi, located along the Nazca River. Once thought to be a large urban center, the “capital” of a pre-industrial

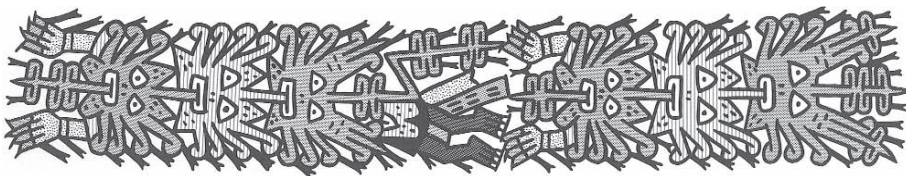


Figure 29.9. “Proliferous” Nasca: an example of proliferation in the Nasca style. (Donald A. Proulx)

state (Rowe 1963 *inter alia*), excavations by Helaine Silverman (1993) and Giuseppe Orefici (1993; Orefici and Drusini 2003) have demonstrated that the site was an empty ceremonial center, which apparently served as a pilgrimage center in the Early Nasca phases (see especially Silverman 1990, 1993). Calculations of site size range from a conservative 150 ha (within which there is a monumental core of 25 ha) from Silverman (1993: 57), to Orefici's (2006: 183) claim of 20 km². Silverman (1993) counts some 40 terraced mounds. Orefici argues that these are arranged in four large compounds, surrounded by an enclosure wall (2006: 183). These mounds and enclosures may have functioned as shrines for separate chiefdoms or ethnic groups. Orefici, who has been excavating at the site since 1984, has found ritual offerings such as caches of large panpipes and spectacular textiles. The site was abandoned after Phase 3 (Rowe 1963: 11), becoming a mortuary area and a place for ritual offerings (Silverman 1993: 318). Cahuachi is surrounded by vast cemeteries, reflecting its importance as a religious center.

Markus Reindel and Johny Isla identify several administrative centers throughout the drainage. The best known is the recently excavated site of Los Molinos facing the Grande Valley. Excavations there by Reindel and Isla revealed a complex of rooms constructed of adobe, including one with columns, used for public gatherings or communal activities (Reindel and Isla 2001). They interpret the site as a residence for the elite, an administrative center dating to the Phase 3, the same time as the apogee at Cahuachi. Nearby is La Muña, a large settlement at the juncture of the Palpa and Grande valleys, which stretches for 2 km along the edge of the valley. La Muña has a rich necropolis with 12 deep shaft tombs surmounted by platforms, which were enclosed by walls. These date to Phase 5, a time when strong secular chiefs appear. Obviously constructed for elite leaders, it reminds one of the Paracas tombs. Large quantities of fine pottery and a few gold pendants were recovered from the otherwise looted graves (Reindel and Isla 2006: 172). Other administrative centers, like Cabildo and Coyungo in the middle and lower Grande Valley have yet to be excavated. No Nasca defensive sites have yet been discovered.

Nasca cemeteries abound, most separated from habitation areas and located on the sandy slopes along the edges of the rivers. A typical Nasca tomb consists of a shaft dug down to variable depths with the seated corpse placed on the bottom, surrounded by pottery, gourds, food offerings, and other personal possessions as well as ritual objects. The walls of some tombs were lined with adobe. The burial chamber was then covered with wooden beams, which in turn were covered with branches, sand, and stones. Virtually all Nasca cemeteries have been ravaged by grave robbers, causing the loss of both artifacts and their contexts.

Socio-Political Organization

Unlike most civilizations that we are familiar with, the Nasca did not have a king or nobles, there was no capital city, no standing army, and there were no temples, priests or gods, as we understand them (Proulx 2006: 35). The Nasca were divided into a number of regional groups, or chiefdoms, each having a local leader who had secular as well as religious functions. Perhaps each major tributary in the multi-tributary drainage had its own chief, but no matter how large a territory each controlled, they all shared a common way of life—the same religious beliefs, the same clothing, houses, pottery, etc. Although the family was the basic social unit, Andean societies have a long tradition of organizing themselves into clans—groups of related people. The Inca called these clans *ayllus*, and in their society the ayllu distributed land, collected taxes, organized work groups, and determined the group

from which a person could select a husband or wife. Although there is no direct evidence, it is very likely that the Nasca had ayllus, and that agricultural work, ritual activities, and perhaps even warfare was accomplished by members of an ayllu (see Silverman 1993: 309–312, 342–343).

Patrick Carmichael, who analyzed over 200 scientifically excavated Nasca graves, argued that the Nasca had a ranked rather than a class-structured society (Carmichael 1988). In other words, there were differences in wealth and power among the Nasca, but these differences were on a graduated continuum, without the presence of unequal classes. The recent excavations of the rich graves at La Muña and at the administrative center of Los Molinos (Reindel and Isla 2001, 2006) requires modification of this model. Just as the preceding Paracas culture had its elite leaders, it is logical to assume the same for its successor. Using the sparse archaeological evidence available, ethnographic analogy, and the iconography painted on their pottery, some educated guesses can be made about how Nasca society functioned. Leaders attained their positions as a result of their special skills and power rather than through heredity. Like their ancestors, the Nasca performed skull deformation, perhaps a sign of rank. It is probable that these chiefs were also religious leaders or shamans, and much of their power may have derived from their perceived ability to manipulate the powerful natural spirits that controlled the destiny of the society. Some of the masked figures depicted on early Nasca pottery may be these shamans impersonating a powerful spirit (Figure 29.10). These chiefs also had secular authority as well. They conscripted men to build irrigation ditches, construct the mounds at the ceremonial site of Cahuachi, build the great geoglyphs on the pampa (Silverman and Proulx 2002: 163–192), and conduct warfare. Social inequality is most clearly seen in Phase 5 (Middle Nasca) when climatic changes altered settlement patterns, and increased warfare and strife is present (Silverman and Proulx 2002: 252). Under these circumstances powerful secular leaders emerge, overshadowing the theocratic leaders of Early Nasca.

Religion

The Nasca, like all the other ancient civilizations in the Andes, lacked writing; there are no books, texts or inscriptions to provide details of their religious beliefs or, for that matter, any other aspect of their society. The Nasca used their material culture (pottery, textiles, other materials, even geoglyphs) to symbolically communicate ideas, especially religious concepts, to members of their society. It is necessary, then, to use a combination



Figure 29.10. Nasca shaman. Note the use of hallucinogenic beverages served from large jars and consumed in small cups, and the role of musical instruments (trumpets, panpipes). (Redrawn from Proulx 2006: 193)

of archaeological evidence, ethnographic analogy, and iconographic analysis of their art to attempt an interpretation of their religion.

Unlike most modern religions, the Nasca did not have gods who were worshiped in temples by priests. Rather they believed in powerful nature spirits, symbolically represented by certain animals, birds, and sea creatures, who were thought to control water, the weather, crops, sickness and health—indeed almost every aspect of human life. These powerful spirits had to be magically manipulated or controlled by man to provide the necessities of life and to maintain a balance or equilibrium between man and nature (Proulx 2006: 8–9). Shamans were the intermediaries between humans and the spirit world. These were special individuals who had the ability to contact these spirits, often while under the influence of hallucinogenic drugs derived from the San Pedro cactus. Shamans conducted rituals that were participated in by ordinary people to the accompaniment of music, dance and ceremonial drinking. On occasion, shamans dressed in the likeness of mythical beings or spirits, wearing gold mouth masks, forehead ornaments, and Spondylus shell necklaces. Perhaps some people believed these impersonators could actually transform into the spirits.

The ancients visualized these nature spirits in the form of mythical beings, creatures having a combination of human and animal/bird/fish characteristics. One of the most common of these creatures is the Anthropomorphic Mythical Being, present in a variety of different manifestations (Figure 29.8). The AMB has a human body to which is attached a long cloak (called a *signifer*) that has the form or symbols of a particular natural creature, often the most powerful forces of the earth, water and sky (Figure 29.8). There are signifiers in the form of a feline, killer whale, or polywog, while others terminate in a plant, fox tail, or bird. For example, when a person saw an AMB whose signifier ends in a vencejo bird (swift), the viewer knew that this bird appeared when water first flowed down the rivers from the mountains, and therefore symbolized water, fertility of the crops, and the beginning of the planting season (Proulx 2006; Silverman 1996: 8–9). In the Late Nasca period the appearance of the AMB is greatly modified by the attachment of multiple rays, volutes and tassels, what are called “proliferous” elements (Roark 1965; Figure 29.9). The body parts become disproportionate, with the head and mouth mask becoming much larger than the remainder of the body. Eventually the body itself is eliminated, leaving only the creature’s head.

Other members in the repertoire of mythical creatures represented in the art are the Horrible Bird, a supernatural raptorial bird, representing celestial forces, who eats trophy heads. The Mythical killer Whale, the most powerful creature of the sea, is shown with a human hand holding a trophy head and/or decapitating knife. The Mythical Killer Whale becomes the primary supernatural creature in the Late Nasca period. In addition there is the Harpy, the Mythical Monkey, and others (Proulx 1983, 2000, 2006). There are more benign mythical creatures that seem to be related more to agriculture and plants than to warfare and trophy heads. These include the Mythical Spotted Cat, a supernatural version of the pampas cat (*Felis colocolo*), a small feline that protects the crops by eating pests. The Serpentine Creature, a snake with feline head, had a similar connotation. And the Harvester, a supernatural farmer holding bountiful plants, can be considered a patron of agriculture.

Ceremonies to supplicate the forces of nature were conducted by shamans, especially at the planting and harvesting of the crops. At planting rituals, farmers painted their faces with multicolored spots and drank alcoholic and hallucinogenic beverages from small cups, as seen on numerous vessels (Figure 29.10). Shaman-musicians played music on panpipes as well as with drums, rattles and trumpets. Similar rituals took place at burials and at the

ritual entombment of caches of trophy heads. Although evidence is sparse, shamans also served as curers in Nasca society.

Most rituals took place in the local communities, but Cahuachi seems to have served as a communal ceremonial center used by people from all of the separate chiefdoms. Nasca religion involved pilgrimages to Cahuachi and perhaps other locations. Some of the Nasca Lines or geoglyphs seem to have served as ritual pathways leading to Cahuachi. A unique modeled clay plaque found early in the last century (Tello 1931) portrays a family group playing panpipes in what has been interpreted as a procession (Silverman 1993: 302). The Nasca believed that certain locations, such as land at the confluence of two rivers or certain mountains or hills, had special sacred power; a river confluence is known in Quechua as *tinkuy*. Interestingly, the cemetery of La Muña, discussed above, was situated at the confluence of the Grande and Palpa rivers, which made it a desirable location for the burial of the elite.

Warfare

Judging from the ceramic art and from archaeological remains, there can be no doubt that the Nasca were a highly warlike society. Their pottery depicts large numbers of warriors, sometimes pictured standing alone holding their weapons, or other males engaged in combat culminating in the decapitation of their victims. Actual weapons, identical to those painted on their pottery, have been found in Nasca tombs, including spears, spear throwers (*atlatl*), clubs, slings, and stone knives. Although warfare is present throughout the entire Nasca sequence, it seems to have increased in intensity and importance beginning in the Middle Nasca period. This was a time of drought causing social upheaval, much tension and documented population movements (Schreiber and Lancho Rojas 1995: 251; Silverman 1993: 327). This is also reflected in the religious iconography with an increase in the depiction of trophy heads and militaristic themes in the art.

The nature and function of Nasca warfare has been the center of debate for many years. There are two main theories. The first argues that the Nasca engaged in ritual battles whose main purpose was to kill and decapitate victims, their heads then carefully transformed into trophies to be used in sacred rituals. The other model argues that the primary motivation for warfare was territorial expansion to gain access to additional resources such as land and water, for defense of one's territory, or for revenge (Proulx 1989). Evidence in support of this theory is based partly on the analysis of trophy heads, the vast majority of which are young males ranging in age from their late teens to late twenties—the same composition one would expect for warriors (Verano 1995). Battle scenes with fully armed combatants are common, many showing decapitation. Finally, the scarcity of water, especially during times of drought, could be a prime motivation for conflict, even between chiefdoms sharing the same basic culture.

Trophy Heads

Warriors killed and then decapitated their victims, retaining the severed heads for ritual purposes. The heads were carefully prepared. The base of the skull was broken and enlarged and the brain and eyes removed. A hole was drilled through the forehead through which a carrying rope was attached. Finally, the lips were pinned shut with one or two thorns (Figure 29.11; see also Silverman 1993: figs. 15.1, 15.2; Verano 1995). The Nasca believed that decapitation and the ritual burial of groups of trophy heads (see Browne et al. 1993:



Figure 29.11. A typical Nasca trophy head. (Donald A. Proulx)

figure 10) were necessary to ensure regeneration and continued growth of the crops (Proulx 2001). Trophy heads are frequently portrayed with plants sprouting from their mouths; sometimes plants are even drawn in the likeness of a trophy head. Thus the acquisition and burial of trophy heads was a primary means of propitiating the nature spirits and ensuring the continuity of life. It also explains why so many mythical beings are associated with trophy heads. Interestingly, cases of decapitated Nasca bodies are known in which the head is replaced with a ceramic vessel depicting a human head (head jars) (Conlee 2006).

Preliminary strontium isotope analysis of a sample of Middle Horizon trophy heads from the Wari site of Conchopata suggests that the victims were not related to their killers, that is, they came from the outside (Tung and Knudson 2004). Hopefully this technique will soon be applied to the study of Nasca trophy heads.

No matter which motivation one accepts for warfare, scholars are in agreement that heads were taken in battle and used for ritual purposes. But few studies have yet been undertaken on human remains to examine them for battle wounds (see Verano 1995: 213).

Trephination

One of the more common battle wounds appears to have been compressed fractures of the skull caused by striking the victim with a club or by stones from a sling. Both the Paracas and

Nasca practiced a primitive form of skull surgery called trephination where a section of bone from the skull was removed through a procedure that involved sawing, drilling or cutting to relieve pressure on the brain. Many skulls have been found that have holes, some with bone re-growth indicating that the person survived, others with sharp edges, indicating that he did not. Infection was the main cause of mortality in these cases. There is no archaeological or iconographic evidence as to how the Nasca treated other wounds and broken bones.

The Geoglyphs

One of the most remarkable achievements of the Nasca was the construction of geoglyphs on the pampas (plains) and hillsides of the valleys of the Río Grande de Nazca drainage (see Silverman and Proulx 2002: 163–192 for a summary of the literature; see also Lambers 2006, a major technical study published subsequently). In many ways the surfaces on which the geoglyphs were drawn can be compared with a giant sketchbook on which we find a new perspective on this complex society.

There are two main varieties of geoglyphs: *geometric* forms such as trapezoids, triangles, zig zag lines and straight pathways running for miles across the desert, and *biomorphs* in the form of gigantic naturalistic creatures such as birds, a monkey, spider and killer whale, each several hectares in size.

The geoglyphs were constructed by removing the dark colored stones on the surface of the desert to expose the lighter colored sand beneath, a relatively simple technique. Nevertheless, the mathematical and engineering skills involved were amazing. The Nasca learned how to run perfectly straight lines across the desert for many miles, how to draw arcs, and make perfectly accurate geometric and naturalistic shapes. They had the skill to take a design and multiply its size many times on the ground to produce the famous geoglyphs we see today.

The geoglyphs have attracted attention because of their large size and the fact that they are best seen from the air, leading some authors, with little scientific training but a lot of wild imagination, to speculate that they were constructed by aliens from another planet (von Däniken 1998) or that the Nasca had aircraft in the form of hot air balloons (Woodward 1977). In reality, most of the designs can be seen at ground level or by climbing the low hills bordering the desert. We know that the geoglyphs were constructed by the Nasca because the biomorphs are identical to designs painted on their pottery, and pieces of ritually broken Nasca pottery have been found associated with the lines. It is highly likely that some of the earliest geoglyphs were made by Paracas Culture people. Geoglyphs continued to be made long after the demise of Nasca Culture.

The geoglyphs had many functions, most of which were religious in nature. Silverman (1990) has argued that many of the lines served as ritual pathways, some leading to the ceremonial center of Cahuachi. Other theories suggest that they were surface water markers (Morrison 1978), water and fertility cult markers (Reinhard 1988), or radiating lines similar to the ceque system of the Incas, pointing to sacred huacas (places) (Aveni 2000; Urton 1990). The popular astronomical associations proposed by Maria Reiche have been largely discredited (Hawkins 1969; Aveni 2000). In the final analysis, the Nasca geoglyphs served multiple purposes (see Silverman and Proulx 2002: 163–192).

Puquios

During the well documented sixth century AD drought, occurring during Phase 5 (Middle Nasca) (see Thompson et al. 1985), the Nasca responded by building a unique system for

tapping underground water sources. This technique involved the excavation of horizontal trenches and tunnels to reach subterranean aquifers that hold water deep beneath the ground. These tunnels, wells and trenches are collectively called *puquios* by Schreiber and Lancho Rojas (1995), using the Quechua word (cf. Silverman 2002: 33). A typical *puquio* consisted of several parts. Deep wells were sunk from the surface down to the water table to access the water. Once water was found a horizontal, river cobble-lined tunnel or “gallery” (without mortar in the walls) was excavated laterally between the wells and until it intersected the underground aquifer. The water was then channeled out to the surface and contained in trenches or reservoirs, to be subsequently distributed to agricultural fields. The deep wells also served as an entry to clean the galleries once the system was functioning. This water system, along with naturally occurring springs, allowed the Nasca to survive at a critical time when the rivers ran dry. Abundant remains of this ingenious water system are still visible above and below ground. A very detailed study is provided by Schreiber and Lancho Rojas (2003).

Nasca’s Achievements

Although ancient Nasca society was by no means the most complex of the ancient Central Andean civilizations, Nasca had many achievements in the scheme of this region’s prehistory and even from a continental and hemispheric perspective. At the time of their emergence out of the earlier Paracas Culture, the Nasca were already making some of the most intricate and beautiful textiles ever created in the New World. Their Paracas ancestors had developed a distinctive art style with an iconography that highlighted both the natural world around them and the supernatural spirits thought to control their lives. The Nasca continued this tradition with a few notable changes. They invented a new technique of decorating pottery with slip paints. Because slip paints change color in an oxidizing fire, the Nasca must have undertaken much experimentation over a short period of time to produce the beautiful polychrome pottery that was to become the hallmark of their society. Over time pottery became the preferred medium for symbolically expressing their religious ideas, replacing but not eliminating textiles. No other ancient society in the New World achieved the level of perfection seen in Paracas and Early Nasca textiles and Nasca polychrome pottery. The Nasca also were geometric masters, as witnessed by their construction of immense geoglyphs; the vast majority of south coast geoglyphs are attributable to them. Scientific knowledge and skill enabled them to conduct trephination operations; although many patients subsequently died, others lived and the survival rate must have been perceived as good enough to warrant continuing this practice. The preparation of trophy heads also reveals significant anatomical knowledge and skill, as well as being a window into the religious beliefs that accompanied this custom. Although contemporary popular culture will continue to think of the Nasca as a “mysterious” society with many unanswered questions, archaeology and iconographical study have revealed much about these ancient people.

NOTES

1. Resin paints are mineral or plant pigments that are bound to the vessel surface after firing using a natural adhesive, such as tree sap.
2. Slip paints consist of finely ground minerals suspended in a clay solution, which is applied to the vessels before firing, and thus are baked onto the surface of the pots.
3. Nasca refers to the archaeological culture. Nazca refers to the geographical region of the river drainage.

REFERENCES

- Aveni, Anthony F., 2000, *Between the Lines*. University of Texas Press, Austin.
- Bird, Junius B. and Louisa Bellinger, 1954, *Paracas Fabrics and Nazca Needlework*. Textile Museum Catalog Raisonné. National Publishing Co., Washington, D.C.
- Browne, David, 1992, Further archaeological reconnaissance in the Province of Palpa, Department of Ica, Peru. In *Ancient America: Contributions to New World Archaeology*, edited by Nicholas Saunders, pp. 77–116. Oxbow Monograph 24, Oxford.
- , Helaine Silverman and Rubén García, 2003, A cache of 48 trophy heads from Cerro Carapo, Peru. *Latin American Antiquity* 4 (3): 274–294.
- Burger, Richard L., 1988, Unity and heterogeneity within the Chavin horizon. In *Peruvian Prehistory*, edited by Richard W. Keatinge, pp. 99–144. Cambridge University Press, Cambridge.
- Carmichael, Patrick H., 1988, Nasca Mortuary Customs: Death and Ancient Society on the South Coast of Peru. Ph. D. dissertation. Department of Archaeology, University of Calgary.
- Cook, Anita G., 1999, Asentamientos Paracas en el valle bajo de Ica. *Gaceta Arqueológica Andina* 25: 61–90.
- Conlee, Christina, 2006, Nasca headless burial. In *Nasca: Wonder of the World*, pp. 36–37. Tokyo Broadcasting System, Tokyo.
- Cordy-Collins, Alana, 1976, An Iconographic Study of Chavín Textiles from the South Coast of Peru: The Discovery of a Pre-Columbian Catechism. Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles.
- De Leonardis, Lisa, 1991, Settlement History of the Lower Ica Valley, Peru, Vth-1st Centuries B.C. M.A. thesis. Department of Anthropology, The Catholic University, Washington, D.C.
- , 1997, Settlement in Callango, Lower Ica Valley, Peru, First Millenium B.C. Ph.D. dissertation. The Catholic University of America, Washington, D.C.
- Dwyer, Jane P., 1971, Chronology and Iconography in Late Paracas and Early Nasca Textile Designs. Ph.D. dissertation. Department of Anthropology, University of California, Berkeley.
- , 1979, The chronology and iconography of Paracas-style textiles. In *The Junius B. Bird Pre-Columbian Textile Conference*, edited by Ann Pollard Rowe and Anne-Louise Schaffer, pp. 105–128. The Textile Museum and Dumbarton Oaks, Washington, D.C.
- Engel, Frederic, 1966, *Paracas: Cien Siglos de Cultura Peruana*. Editorial Juan Mejia Baca, Lima.
- , 1991, *Un Desierto en Tiempos Prehispánicos*. Foundation pour L'Etude des Problemes de Terres Arides, Lima.
- Frame, Mary, 1999, Textiles of the Nasca style. In *Tejidos Milenarios del Perú*, edited by José de Laval and Rosario de Laval de Cardenas, pp. 261–310. Integra, Lima.
- , 2006, The art and craft of Nasca textiles. [abstract]. In *Nasca: Wonder of the World*, pp. 219–220. Tokyo Broadcasting System, Tokyo.
- Hawkins, Gerald, 1969, Ancient Lines in the Peruvian Desert. Final Scientific Report for the National Geographic Society Expedition, Smithsonian Institution, Astrophysical Observatory, Cambridge.
- Isla, Johny, 2006, Paracas. In *Peru: Art from the Chavín to the Incas*. Skira, Paris.
- , Markus Reindel, and Juan de la Torre, 2003, Jauranga: un sitio Paracas en el valle de Palpa, costa sur del Perú. In *Beiträge zur Allgemeinen und Vergleichenden Archäologie*, Band 23, pp. 227–274.
- Kauffmann Doig, Federico, 1999, The textile art of Paracas. In *Tejidos Milenarios del Perú*, edited by José de Laval and Rosario de Laval de Cardenas, pp. 143–234. Integra, Lima.
- Lambers, Karsten, 2006, *The Geoglyphs of Palpa, Peru. Documentation, Analysis, and Interpretation*. Forschungen zur Archäologie, Aussereuropäischer Kulturen, Band 2. Aichwald.
- Lau, George F., 2000, Espacio ceremonial Recuay. In *Los Dioses del Antiguo Perú*, edited by Krzysztof Makowski, pp. 178–197. Banco de Crédito, Lima.
- , 2002, Feasting and ancestor veneration at Chinchawas, north highlands of Ancash, Peru. *Latin American Antiquity* 13: 279–304.
- Lavalle, José and Werner Lang, 1983, *Paracas*. Colección Arte y Tesoros del Perú. Banco del Credito del Perú en la Cultura, Lima.
- Massey, Sarah A., 1986, Sociopolitical Change in the Upper Ica Valley: B.C. 400 to 400 A.D.; Regional States on the South Coast of Peru. Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles.
- , 1991, Social and political leadership in the lower Ica Valley. In *Paracas Art and Architecture. Object and Context in South Coastal Peru*, edited by Anne Paul, pp. 315–348. University of Iowa Press, Iowa City.

- Menzel, Dorothy, John H. Rowe and Lawrence E. Dawson, 1964, *The Paracas Pottery of Ica*. University of California Publications in American Archaeology and Ethnography No. 50. University of California Press, Berkeley.
- Orefici, Giuseppe, 1993, *Nasca: Arte e Società del Popolo dei Geoglifi*. Jaca Books, Milan.
- , 2006, Reconstructing Nasca domestic and ceremonial life: a view from Cahuachi and Pueblo Viejo. In *Nasca: Wonder of the World*, pp. 183–183. Tokyo Broadcasting System, Tokyo.
- and Andrea Drusini, 2003, *Nasca: Hypótesis Evidencias de su Desarrollo Cultural*. Centro Italiano Studi e Recherche Archeologiche Precolombiane, Brescia.
- Patterson, Thomas, 1971, Chavín: an interpretation of its spread and influence. In *Dumbarton Oaks Conference on Chavín*, edited by Elizabeth P. Benson, pp. 29–48. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Paul, Anne, 1990, *Paracas Ritual Attire*. University of Oklahoma Press, Norman.
- , 1991, Paracas: an ancient cultural tradition on the south coast of Peru. In *Paracas Art and Architecture. Object and Context in South Coastal Peru*, edited by Anne Paul, pp. 1–34. University of Iowa Press, Iowa City.
- Peters, Ann H., 1997, Paracas, Topará and Early Nasca: Ethnicity and Society on the South Central Andean Coast. Ph.D. dissertation. Department of Anthropology, Cornell University, Ithaca.
- Proulx, Donald A., 1968, *Local Differences and Time Differences in Nasca Pottery*. University of California Publications in Anthropology, Vol. 5. University of California Press, Berkeley.
- , 1983, The Nasca style. In *Art of the Andes: Pre-Columbian Sculptured and Painted Ceramics from the Arthur M. Sackler Collections*, edited by Lois Katz, pp. 87–106. The Arthur M. Sackler Foundation and the AMS Foundation for the Arts, Sciences and Humanities, Washington, D.C.
- , 1989, Nasca trophy heads: victims of warfare or ritual sacrifice? In *Cultures in Conflict: Current Archaeological Perspectives*, edited by Diana C. Tkaczuk and Brian C. Vivian, pp. 73–85. Proceedings of the 20th Annual Chacmool Conference, University of Calgary. The Archaeological Association of the University of Calgary, Calgary.
- , 1999, Settlement Patterns and Society in South Coastal Peru. Report on a Survey of the Lower Río Nasca and Río Grande, 1998.
- , 2000, Nasca iconography: an overview. *The Studio Potter* 29 (1): 36–43.
- , 2001, The ritual use of trophy heads in ancient Nasca society. In *Ritual Sacrifice in Ancient Peru*, edited by Elizabeth P. Benson and Anita G. Cook, pp. 119–136. University of Texas Press, Austin.
- , 2006, *A Sourcebook of Nasca Ceramic Iconography*. University of Iowa Press, Iowa City.
- Reindel, Markus and Johny Isla, 2001, Los Molinos und La Muña. Zwei Siedlungszentren der Nasca-Kultur in Palpa, Südperu. *Beiträge zur Allgemeinen und Vergleichenden Archäologie*, Band 21, pp. 241–319.
- , 2006, Reconstructing Nasca social and political structures: a view from Los Molinos and La Muña. In *Nasca: Wonder of the World*, pp. 165–173. Tokyo Broadcasting System, Tokyo.
- Reinhard, Johan, 1988, *The Nazca Lines: A New Perspective on their Origin and Meaning*, 4th edition. Editorial Los Pinos, Lima.
- Roark, Richard, 1965, From monumental to proliferous in Nasca pottery. *Ñawpa Pacha* 31: 1–92.
- Rowe, John H., 1963, Urban settlements in ancient Peru. *Ñawpa Pacha* 1: 1–27.
- Sawyer, Alan, 1961, Paracas and Nazca iconography. In *Essays in Pre-Columbian Art and Archaeology*, edited by Samuel K. Lothrop and others, pp. 269–298. Harvard University Press, Cambridge.
- , 1997, *Early Nasca Needlework*. Laurence King Publishing, London.
- Schreiber, Katharina J., 1999, Regional approaches to the study of prehistoric empires. Examples from Ayacucho and Nasca, Peru. In *Settlement Pattern Studies in the Americas. Fifty Years Since Virú*, edited by Brian R. Billman and Gary M. Feinman, pp. 160–171. Smithsonian Institution Press, Washington, D.C.
- and Josué Lancho Rojas, 1995, The Puquios of Nasca. *Latin American Antiquity* 6 (3): 229–254.
- and Josué Lancho Rojas, 2003, *Irrigation and Society in the Peruvian Desert. The Puquios of Nasca*. Lexington Books, Lanham.
- Silverman, Helaine, 1988, Nasca 8: A reassessment of its chronological placement and cultural significance. In *Multidisciplinary Studies in Andean Anthropology*, edited by Virginia Vitzthum, pp. 23–32. Michigan Discussions in Anthropology 8. University of Michigan, Ann Arbor.
- , 1990, The early Nasca pilgrimage center at Cahuachi: archaeological and anthropological perspectives. In *The Lines of Nasca*, edited by Anthony F. Aveni, pp. 207–244. American Philosophical Society, Philadelphia.
- , 1991, The Paracas problem: archaeological perspectives. In *Paracas Art and Architecture. Object and Context in South Coastal Peru*, edited by Anne Paul, pp. 349–415. University of Iowa Press, Iowa City.

- _____. 1993, *Cahuachi in the Ancient Nasca World*. University of Iowa Press, Iowa City.
- _____. 1994, Paracas in Nazca: New data on the Early Horizon occupation of the Río Grande de Nazca Drainage, Peru. *Latin American Antiquity* 5 (4): 359–382.
- _____. 1996, Musicians of the desert. In *Birds on a Drum. Conservation of a Pre-Columbian Musical Instrument*, pp. 8–12. Krannert Art Museum and Kinkead Pavilion, University of Illinois at Urbana-Champaign.
- _____. 2002, *Ancient Nasca Settlement and Society*. University of Iowa Press, Iowa City.
- _____ and Donald A. Proulx, 2002, *The Nasca*. Blackwell Publishers, Oxford.
- Tello, Julio C., 1931, Un modelo de escenografía plástica en el arte antiguo peruano. *Wira Kocho* 1 (1): 87–112.
- _____. 1959, *Paracas: Primera Parte*. Empresa Gráfica T. Scheuch, Lima.
- _____ and Toribo Mejía Xesspe, 1979, *Paracas, II Parte*. Universidad Nacional Mayor de San Marcos, Lima.
- Thompson, Lonnie G., E. Mosley-Thompson, J. F. Bolzan and B. R. Koci, 1985, A 1500-year record of tropical precipitation in ice cores from the Quelccaya ice cap, Peru. *Science* 229: 971–973.
- Tung, Tiffany and Kelly Knudson, 2004, Local Ancestors or Foreign Enemies?: The Origin of Trophy Heads from the Wari site of Conchopata. Manuscript in possession of the author.
- Urton, Gary, 1990, Andean ritual sweeping and the Nazca lines. In *The Lines of Nazca*, edited by Anthony F. Aveni, pp. 173–206. American Philosophical Society, Philadelphia.
- Vaughn, Kevin, 2000, Archaeological investigations at Marcaya: A Village Approach to Nasca Sociopolitical and Economic Organization. Ph.D. dissertation. Department of Anthropology, University of California, Santa Barbara.
- Verano, John W., 1995, Where do they rest? The treatment of human offerings and trophies in ancient Peru. In *Tombs for the Living: Andean Mortuary Practice*, edited by Tom D. Dillehay, pp. 189–227. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Von Däniken, Erich, 1998, *Arrival of the Gods*. Element Books, Boston.
- Woodward, Jim, 1977, *Journey to the Sun: Nazca*. Pocket Books, New York.

Social Landscapes in Pre-Inca Northwestern Argentina

JUAN B. LEONI AND FÉLIX A. ACUTO

INTRODUCTION

The people that inhabited northwestern Argentina before the arrival of the Incas shared a basic, common cultural background with other Andean societies (Figure 30.1). Nevertheless, they seem to have followed a unique developmental trajectory that differs from the socio-cultural processes that took place in the Central Andes. This chapter is a survey of these societies. Excellent syntheses are already available (e.g., González 1977; González and Pérez 1972; Ottonello and Lorandi 1987; Raffino 1988) and we refer readers to them for further information on specific archaeological materials.

We organize our discussion in terms of the existing periodification for this area: Early (ca. 500 BC–AD 650, sometimes called Formative), Middle (ca. AD 650–900) and Late (ca. AD 900–1400/1470) (González and Pérez 1972) (Figure 30.2). Instead of discussing each period as an evolutionary stage in a unified developmental sequence, we adopt a perspective that focuses on the lived experiences of the past groups. We discuss how landscapes, places, and identities were socially constructed and negotiated in each period, stressing the importance of daily life experiences and interactions as much as the central role of material culture in these socio-cultural processes.

EARLY PERIOD: VILLAGE LIFE AND EXOTIC GOODS

Northwestern Argentina was characterized during the Early Period by the proliferation of sedentary village societies (Albeck 2000; González 1977; González and Pérez 1972; Nuñez Regueiro 1974; Tarragó 1996; Tarragó and Scattolin 1999; Raffino 1977, 1988). These small-scale village societies occupied the different subareas of northwestern Argentina, from the high altitude punas to the highland valleys to the low-lying warmer valleys of the

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

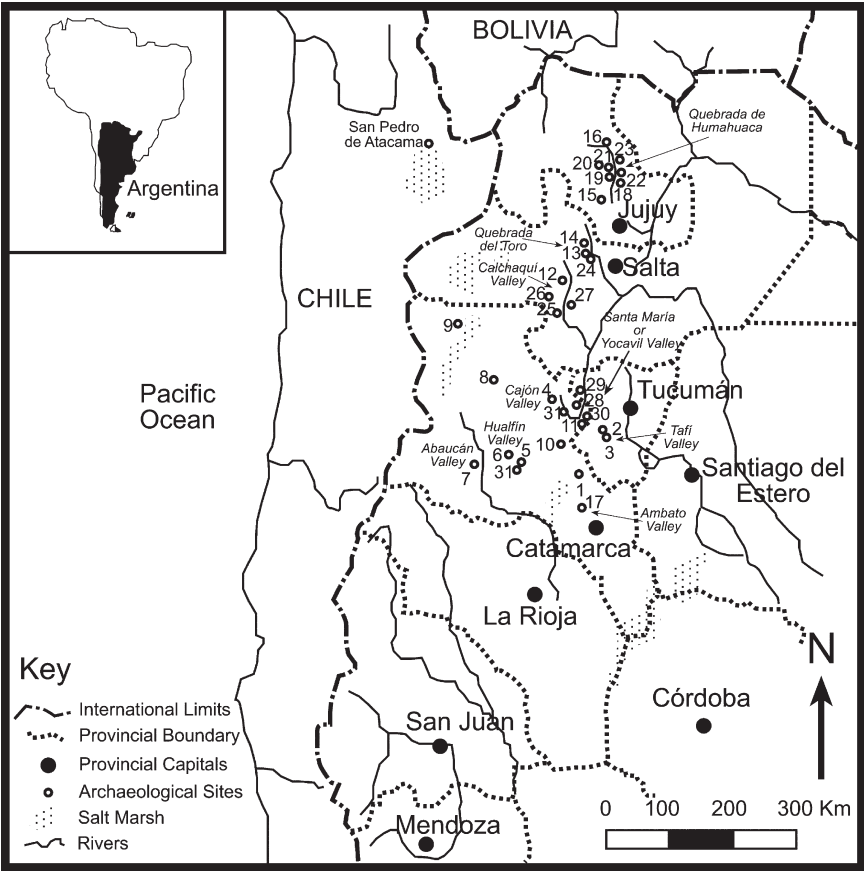


Figure 30.1. Map of Northwestern Argentina showing location of archaeological sites mentioned in the text. 1. Alamito; 2. Tafí; 3. El Mollar; 4. Yutopán; 5. La Ciénaga; 6. Condorhuasi; 7. Saujil; 8. Laguna Blanca; 9. Tebenquiche; 10. Loma Alta; 11. Morro de las Espinillas; 12. Campo Colorado; 13. Las Cuevas; 14. Cerro El Dique; 15. Estancia Grande; 16. Antumpa; 17. La Rinconada; 18. Pucaráde Tilcara; 19. Juella; 20. Los Amarillos; 21. Yacoraita; 22. La Huerta; 23. Peñas Blancas; 24. Tastil; 25. La Paya; 26. Las Pailas; 27. Valdéz; 28. Rincón Chico; 29. Quilmes; 30. Loma Rica de Shiquimil; 31. Famabalasto; 32. Azampay. (Juan Leoni and Félix Acuto)

PERIOD	Quebrada de Humahuaca	Quebrada del Toro	Calchaquí Valley	Santa María Valley	Hualfín Valley	Tafí Valley	Campo del Pucará
LATE PERIOD AD 900-1400/ 1470	Humahuaca	Tastil	Santa María	Santa María	Belén	Santa María	
MIDDLE PERIOD AD 650-900	Isla Alfarcito			Aguada	Aguada	Tafí	
EARLY PERIOD 500 BC-AD 650	Antumpa Estancia Grande	Las Cuevas Cerro El Dique	Campo Colorado	Ciénaga Condorhuasi	Ciénaga Condorhuasi	Tafí	Ciénaga Condorhuasi Alamito

Figure 30.2. Chronological chart for the Quebradas and Valleys subarea of Northwestern Argentina, indicating archaeological cultures and/or sites for each of the periods discussed in the text. (Juan Leoni and Félix Acuto)

eastern slopes of the Andes (Figure 30.1). They were largely based on agricultural (corn, potato, beans, pumpkin, quinoa) and herding (llamas) subsistence practices, the emphasis on each varying according to the environmental zones in which they were located, and occasionally complemented by hunting and gathering. Ceramic, textile, and metallurgical production developed during these times, reaching in some cases very high standards of manufacture and aesthetic quality. Exchange networks (presumably long-distance llama caravans as well as short-distance direct exchanges), through which both quotidian and sumptuary goods as much as ideas and people circulated, seem to have kept these societies tightly interconnected, though no centralizing political authorities apparently developed during this period. It is generally agreed that these communities were, for the most part, internally homogeneous with little social differentiation or political centralization, though more pronounced hierarchy and inequality seem to develop by the late part of this period (see Nuñez Regueiro and Tartusi 1996–97).

The typical (though not unique) Early Period landscapes were characterized by the location of hamlets and houses in direct physical association with the main productive resources: agricultural lands, water, and pastures. In this way, daily domestic activities and agricultural practices were fully integrated, both carried out in close physical proximity and well within visible and even audible range (on the other hand, herding practices commonly required spatial separation from the habitation nuclei).

Characteristic Early Period villages were generally situated on alluvial terraces and cones, valley floors or low-sloped foothills. They comprised a small number of individual houses or nuclei of small groups of conjoined rooms located within agricultural plots, which in some cases were walled, and separated from each other by short distances (e.g., Cerro El Dique, Salta (Raffino 1977); Loma Alta, Catamarca (Scattolin 1990) (Figure 30.3) [Note 1]. Residential units comprising groups of rooms around a central patio are common in the southern highland valleys and in the western part of the area, suggesting social units larger than those inhabiting the isolated houses that constitute dispersed hamlets more common in the western puna and northern valleys (Ottonello and Lorandi 1987: 68–69). These residential bases were commonly complemented by smaller dependent sites located in other environmental zones, which served specific purposes such as herding, hunting, raw material procurement, rock painting, funerary practices and other rituals. Typical Early Period villages seem not to follow (except for the conspicuous Alamito centers) an obvious spatial ordering. Residential and agricultural compounds generally were built without a uniform orientation or set distances between them. This apparently haphazard site plan most probably responded to the inhabitants' knowledge of locality and the needs of agricultural practices (see Robin 2002: 252–255 for a similar case).

Productive activities seem to have been carried out mainly at a household level, and along with domestic practices constituted—given their physical spatial integration—the focus of the social construction of space and experience of everyday life in the Early Period. In other words, while some household members tended to the crops in the fields situated around the habitations, others cooked, manufactured lithic and other tools, spun wool, wove, etc., either in the houses, the space directly around the individual houses, or in the central patios that connected several habitations. These spaces certainly constituted the focus of Early Period life, having a crucial role in the social, economic, and ideological construction and reproduction of these societies. Even more complex activities, such as the production of metal artifacts (e.g., Yutopíán site, Cajón Valley, Catamarca [Gero and Scattolin 1994]) and other elaborate goods such as fine funerary ceramics and lithic sculpture, might have been carried out in this type of locale [Note 2].

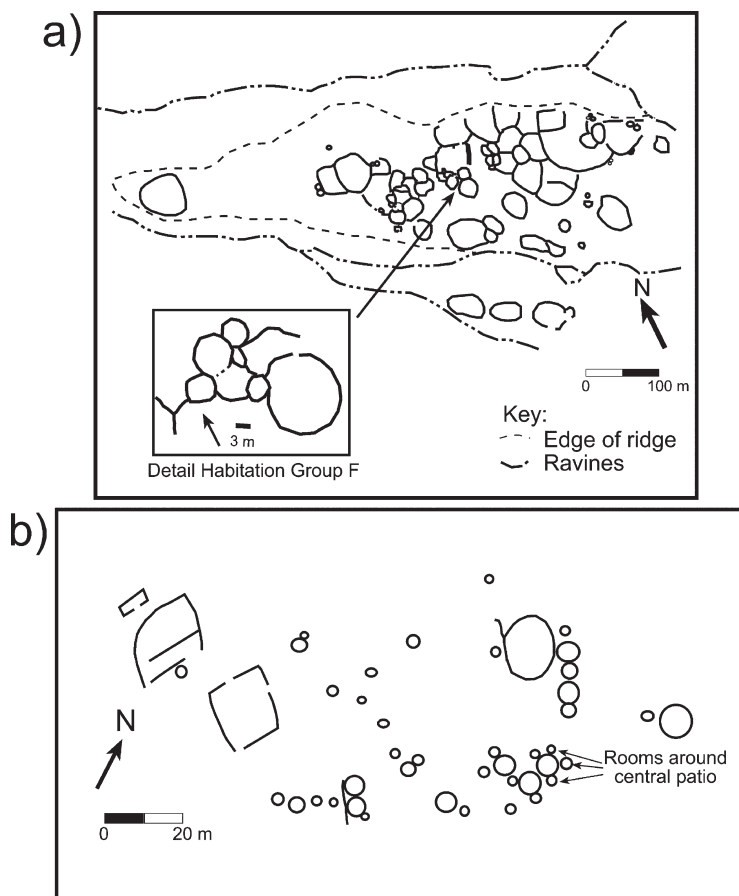


Figure 30.3. Site plans of Early Period villages. a. Loma Alta, Catamarca (redrawn from Scattolin 1990: figs. 5 and 6); b. Cerro El Dique, Salta. (Redrawn from Raffino 1988: fig. 4.1).

Varied ritual practices were carried out within the household spaces as well. Thus, burials, generally consisting of direct primary interments with infants sometimes placed in urns and accompanied by various grave goods, were located either in the patios or inside the rooms. This probably reinforced the integration and autonomy of these social units and symbolized their continuity through time. Specialized segregated cemeteries are not common but have been found in the Hualfín Valley (González 1977: 153), Upper Calchaquí Valley (Tarragó 1996:109–110), Tebenquiche and Laguna Blanca sites in the puna (Raffino 1988: 152), among others, and seem to represent different conceptions of the role and place of the dead in social life as well as of the organization of residential groups. Other household rituals included the consumption of hallucinogenic substances like the cebil (*Anadenanthera* sp.), smoked with ceramic and lithic pipes. In some cases (e.g., Tafí sites, Tucumán [Raffino 1988: 146], Tebenquiche, Catamarca [Haber 1996: 77–78]) stone menhirs with or without carved decoration located in the patios or close to the houses would have had ritual significance, either as religious images, kin group identity emblems, or ancestors' representations, and were perhaps the focus of varied ceremonies.

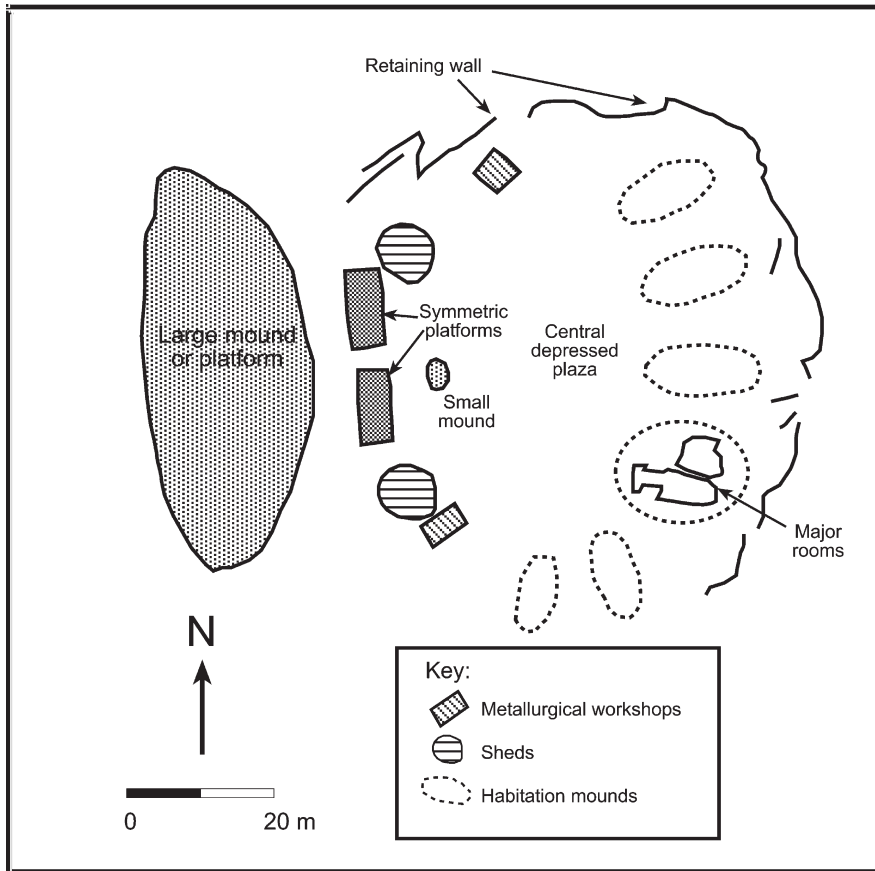


Figure 30.4. Site plan of an Alamito culture ceremonial village, Campo del Pucará, Catamarca. (Redrawn from Raffino 1988: fig. 4.6).

The evidence for supra-household rituals is scant at present, and there is a general absence of communal public ceremonial or administrative architecture. Only a few examples of public architecture are known for this period and include a mound associated with several menhirs at El Mollar, Tucumán (González and Nuñez Regueiro 1960; Nuñez Regueiro and García Azcarate 1996) and the mound and symmetric platforms located at one extreme of each of the Alamito culture ceremonial villages (Nuñez Regueiro 1998) (Figure 30.4). Individual residential compounds or unstructured and open areas close to the villages could have constituted loci for integrative community religious and political rituals in Early Period villages and hamlets, although no evidence exists for this at present.

Apparently, the construction of place in the Early Period was primarily centered around a strong emphasis on locality, which in turn provided a sense of belonging, collective identity, and cohesion (see Lovell 1998: 4). Common activities such as house building or agricultural work, as much as varied rituals and social practices constituted forms of creating and reproducing locality. While households seem to have constituted the base for economic, social and ideological reproduction in most Early Period societies (Haber 1996), sharing a common productive space fostered some degree of supra-household integration.

The proximity of houses and agricultural fields contributed to promoting a sense of community, or the participation of the households in a greater social and productive entity. The general lack of noticeably significant differences in house sizes or architectural techniques, as well as the general absence of imposing public or ceremonial structures, implies that an egalitarian communal ethos prevailed in these villages.

While seemingly autonomous, these villages were by no means isolated entities. Ample exchange networks interconnected them and ensured that a wide range of goods (both sumptuary and ordinary) and ideas circulated among them (Haber 1996; Nuñez Regueiro 1998; Tarragó 1996). These exchange networks may have sown the seeds for increasing sociopolitical differentiation as they provided opportunities for both distributing and obtaining ideologically and economically valued objects. Metal artifacts and adornments, fine Ciénaga (Willey 1971: fig. 4–17) and Condorhuasi style ceramics (Willey 1971: fig. 4–20), and other items were presumably distributed in this way over vast geographic extensions (González 1977), and could have served to promote shared regional identities as much as to create differences within the Early Period villages. Households that produced and consumed these types of goods would have been in a vantage position to gain social status and political power within their communities. Similarly, the gradual monopolization of supra-household rituals and ceremonialism could have led to increasing degrees of sociopolitical differentiation within the communities. Nevertheless, the fact that a great proportion of these prestige items ended up as part of gravelots, eliminating them from the visible and active realm of life might indicate that the communal ethos was strong enough to successfully counterbalance trends toward inequality, at least for a while. Indeed, processes promoting social differentiation and hierarchy are most apparent in a group of valleys located in western Catamarca province, and lead ultimately to the rise of Aguada (see below), but parallel processes might have developed in other parts of the area as well.

While villages with the characteristics described above predominated in the area during this period, other types of landscape and space construction also existed. Although typical of the Late Period, densely conglomerated settlements located on high topographical features, separated from agricultural fields, seem to have antecedents in the Early Period. Sites like Yutopían (Cajón Valley, Catamarca) (Gero and Scattolin 1994) and Morro de las Espinillas (Santa María Valley, Catamarca) (Tarragó and Scattolin 1999) show this pattern and suggest that certain groups operated with radically different conceptions of social life and organization. Conspicuously planned sites of the Alamito culture (Campo del Pucará, Catamarca) show a rigid planning and were loaded with cosmological and social symbolism (Figure 30.4). Successively interpreted as villages and ceremonial centers (Nuñez Regueiro 1998; Nuñez Regueiro and Tartusi 1996–97), these sites remained, however, spatially and temporally limited, although they seem to have contributed to the later development of Aguada. In fact, Nuñez Regueiro and Tartusi (1996–97) claim that Early Period Alamito ceremonial villages constituted the evolutionary watershed in northwestern Argentina. In their view, these places were the antecedent of Aguada ceremonial centers, initiating transformation of the religious sphere and interregional relationships. Indeed, during the Middle Period ceremonial centers became a familiar feature of the central and southern northwestern Argentina landscape.

MIDDLE PERIOD: JAGUARS AND CEREMONIAL CENTERS

The Middle Period is characterized by the rise of a distinctive stylistic and social entity known as Aguada [Note 3]. Its developmental focus seems to have been the Ambato Valley in Catamarca (Gordillo 1990, 1992–94; Pérez et al. 1996–97) (Figure 30.1) from which it

spread over a vast part of central and southern northwestern Argentina, including the southern Calchaquí Valley to northern San Juan province, but without affecting the areas of the former Tafi and Alamito cultures, the Quebrada de Humahuaca and other northern valleys. In these latter areas the typical village way of life described for the Early Period seems to have persisted more or less unchanged. Aguada objects, on the other hand, reached as far as San Pedro de Atacama, Chile, through long distance exchange networks.

Aguada was originally defined as an archaeological culture on the basis of a diagnostic style of fine ceramics that includes several variants (see, e.g., Willey 1971: fig. 4–37), the most characteristic of which has white incised motifs over a black or gray polished background. Aguada's complex iconography seems to derive from Ciénaga style ceramics of the Early Period (Willey 1971: fig. 4–17), and is dominated by the thematic association of felines, warriors, and trophy heads. Ceramics, metal ornaments (copper, bronze, and gold; see Willey 1971: fig. 4–38) and wooden artifacts commonly display representations of warriors/priests frontally depicted wearing elaborated headdresses, holding axes and darts or sacrificing captives; trophy heads; and a range of feline-related motifs, including jaguars and anthropomorphized felines (Figure 30.5).

Spatial variations within this generalized style soon became evident and led González (1977) to identify three different regional modalities (Eastern, Western, and Southern), with specific characteristics. A later reinterpretation by Nuñez Regueiro (1974: 179–181) argued that Aguada actually represented a time of regional integration when a religious

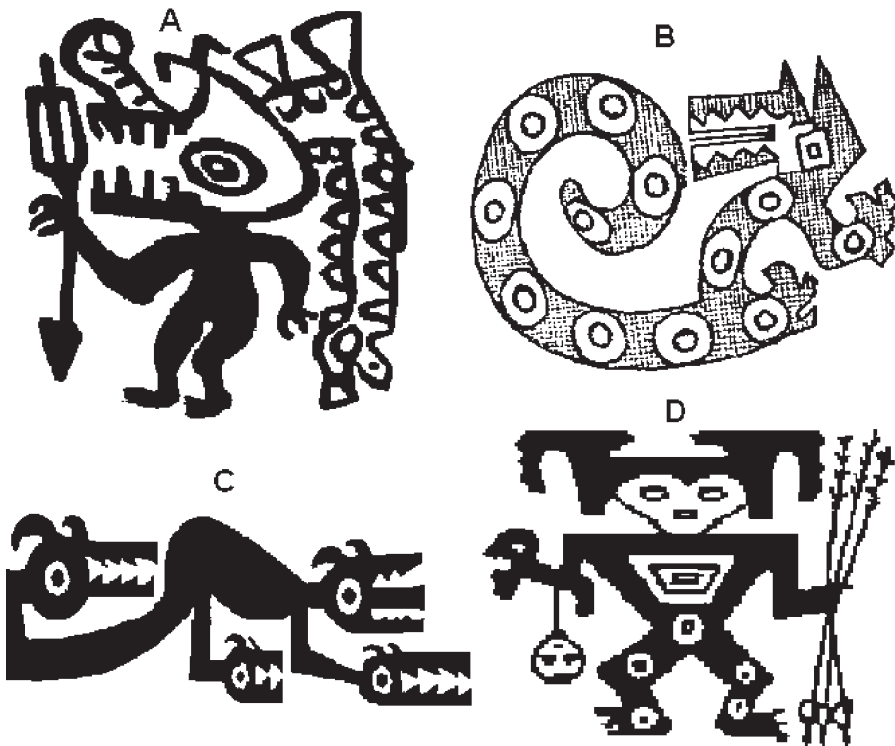


Figure 30.5. Characteristic Aguada iconography. a. Human wearing a feline mask and holding an arrow; b. Feline; c. Felines; d. Warrior with elaborate headdress and feline costume, holding arrows and a trophy head. (A and D redrawn from Gordillo and Kush 1987: 43, 49; B and C redrawn from González 1961–64: figs. 3.3., 3.4 – scale not provided in the original).

cult materialized in the distinctive iconography spread over northwestern Argentina, unifying a wide range of village societies but without significantly changing the sociopolitical organization of those groups. This latter idea has in turn been reevaluated and it is currently argued that Aguada represents a stage characterized by the existence of theocratic chiefdom-level polities, with chiefs using religion to legitimize their position (Pérez 2000). These chiefs commanded a prestige goods economy that took advantage of regional exchange networks to distribute cult-related sumptuary artifacts, hallucinogenic substances (e.g., cebil or *Anadenanthera sp.*), and emblems of rank.

Settlement patterns indicate that for the most part the village way of life remained dominant during this period (e.g. Assandri and Juez 1996–97; Delfino 1996–97; Gambier 1996–97; Sempé et al. 1996–97). Whereas there were some small clustered villages during the Middle Period, there was not a dramatic change in the way people dwelled in the landscape. Settlements were still dispersed, small, and composed of a few houses closely related to the land. Nevertheless, significant changes are revealed by the increase of public architecture, in the form of mounds or platforms within villages (e.g., Callegari et al. 1996–97) or more impressive ceremonial centers such as La Rinconada, in Ambato, Catamarca (Gordillo 1990, 1992–94) (Figure 30.6), that reveals transformations in the construction of landscapes and places, as well as of local, regional, community, and supra-community identities.

Conspicuous ceremonial centers characterize the Middle Period Aguada landscape, something that, with very few exceptions, Early Period settlements lack (see Gordillo 2004 for a description of some of these places formalizing large public spaces, as well as their

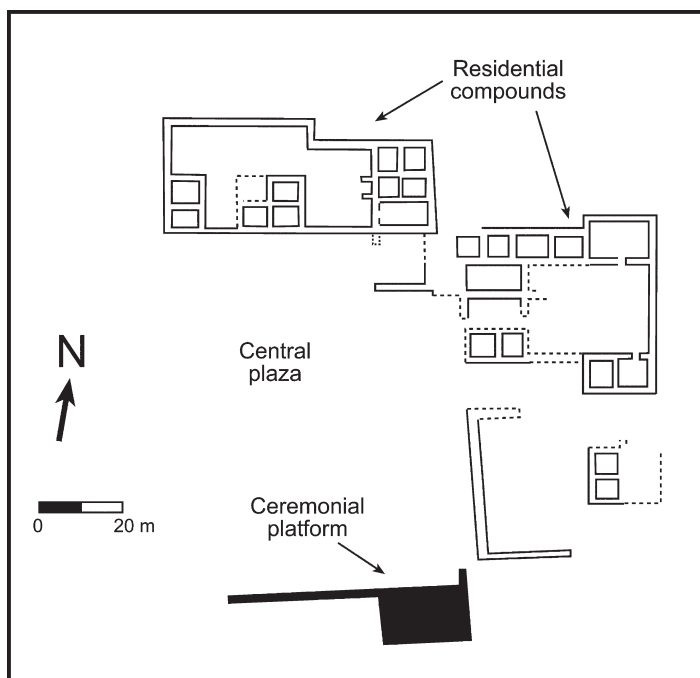


Figure 30.6. Site plan of La Rinconada, Catamarca, major Aguada ceremonial center. (Redrawn from Gordillo 1990: 21).

centrality and importance within sites; Callegari et al. 1996–97; González et al. 1999; Gordillo 1990, 1992–94, 2004; Kush and Gordillo 1997; Pérez Gollán 2000). Aguada ceremonial centers, which were established in close proximity to residential places, may have begun to function as poles of attraction for small neighbor communities and households, creating formal places for gathering. There is no evidence indicating that residents in control of the ceremonial centers had means to physically coerce people, obliging them to come to the central places. However, the effectiveness of the integration process is apparent in the consumption of similar material culture, and a rich world of symbolic ideology embodied by the widely spread objects. The Aguada landscape successfully integrated households and small communities, although they were still dispersed over a vast area.

The social integration achieved in choreographic ceremonial centers also promoted new tensions and contradictions in the experience of participants. Although on the one hand they were places for gathering and sharing at least rituals, the distinctive ideology and integrative identity, on the other, ceremonial centers were places of inequality and stratification. Their spatial design promoted the division between active ritual performers and their (probably more passive) audience. The distinction between the two strata was probably further emphasized by differences in knowledge and cultural capital, and in the quantity and quality of the goods consumed and displayed. Consequently, ceremonial centers operated as places that integrated dispersed communities and households under a shared ideology, but institutionalized social inequality and distinction.

Another tension that people and communities experienced during the Middle Period was between an ideology that seems to have reified violence (Balesta and Zagorodny 2003; González 1998; Gordillo and Kush 1987; Pérez Gollán 1986) and an apparently general lack of inter-communal or interregional conflict. On one hand, Aguada iconography depicts symbols connected with the wild (jaguars or stylized felines) [Note 4] as well as violence and warfare (persons holding weapons and/or decapitated heads and people wearing feline masks and costumes) (Figure 30.5). On the other hand, archaeological evidence suggests that conflict and warfare between Middle Period communities and regions was not very common. Aguada sites are generally located in valley bottoms, or in easily accessible places, and do not have prominent defensive features. Likewise, some archaeologists suggest that the rituals performed in Aguada ceremonial centers included human sacrifices. For instance, researchers found human bones in the platform mound associated with the public space at La Rinconada (Gordillo 1992–94, 2004), and there are tombs that contain human skulls interpreted as trophy heads. However, specific archaeological remains or contextual associations supporting such an interpretation have not been presented. In fact, evidence for rituals that entailed human sacrifices still seems quite weak, and the presence of disembodied heads in different contexts could very well correspond to practices of ancestor veneration. Therefore, where was the iconographically depicted violence experienced? Was it confined to a ritual domain and only experienced and/or witnessed at very specific times and places? Or did it refer to idealized cosmological and religious notions manipulated by an emergent political elite? Who were the enemies whose heads were supposedly taken and displayed? Were they actual enemies or victims selected for propitiatory sacrifices meant to benefit society as a whole? Or were the disembodied heads sacred relics of worshipped ancestors? Many issues still remain to be unraveled regarding the socio-cultural dynamics of the Middle Period.

In sum, the Middle Period was a time of dramatic transformations in the social life of central and southern northwestern Argentina. It was a period of increasing supra-communal and interregional integration. Ceremonial centers provided places where people from different

areas came together and had the opportunity to meet other people and groups. However, in these places of integration people also experienced a new sense of social distinction, for the public activities were presumably sponsored by social agents intent on institutionalizing social inequality. Furthermore, a distinctive style, set of symbols, and the ideology that produced them promoted a widely shared supra-regional identity during the Middle Period. This widespread ideology seems to have worked to legitimize the rise and reproduction of institutionalized positions of power and social inequality, creating a new focus of social tension. Nonetheless, for the most part, daily life remained unchanged from Early Period times. People still resided in small settlements directly related to the means of production. This would greatly change in the Late Period when the way of dwelling transformed quotidian social relations and the experience of place in settlements.

We do now know what happened to Aguada in the Late Period. Unfortunately the causes of its collapse or transformation remain little known. Archaeologists must devote more effort to exploring why and how Aguada ideology and ceremonial centers gave way to the remarkably different socio-cultural dynamics of the Late Period.

LATE PERIOD: ENTANGLED COMMUNAL LIFE

Traditionally, archaeologists characterize the Late Period as a time of regional development and increased socio-political complexity, when regional chiefdoms ruled discrete portions of the landscape (González and Pérez 1972; Ottonello and Lorandi 1987; Raffino 1983, 1988; Tarragó 2000). According to this interpretation, the road toward social complexity, inequality, and economic stratification initiated in the Middle Period was more emphatically consolidated during the Late Period. However, following popular ideas and models of cultural evolutionism, many aspects of the social, political, and economic organization were assumed rather than proved. Consequently, social inequality and stratification have been greatly emphasized without much proof. We think that social inequality and differences in power between individuals and groups were far from being consolidated, and that the Late Period was not an era of centralized political structures with marked economic stratification.

There are four main features that archaeologists have deemed indisputable indicators of institutionalized social inequality and/or economic stratification during the Late Period: 1) sites of different sizes (assumed to represent evidence of settlement hierarchy); 2) craft specialization; 3) differences in offerings among burials; and 4) warfare (principally indicated by a tendency to occupy higher and more defensive locales, creating fortified strongholds on the Late Period landscape).

Despite archaeologists' assertions that chiefdoms and social inequality characterized the Late Period, ethnohistory downplays the power of chiefs. Historical accounts state that at the time of the Spanish conquest there were no large polities in northwestern Argentina ruling wide regions (Lorandi and Boixadós 1987–88; Ottonello and Lorandi 1987; Raffino 1983). The political situation was quite fragmented. Indigenous chiefs acquired their position based on their skills in battle and their political ability to organize resistance against the Spaniards, to negotiate with them, or to make alliances with other indigenous groups. However, the chiefly office was temporary and quite weak, reinforced in times of war or conflict, but later dissolved as political situations returned to normal (Lorandi and Boixadós 1987–88; Raffino 1983). Chiefs did not have institutionalized power and were not capable of controlling the means of production or of extracting labor and goods from their people

(Lorandi 1997: 255). Thus, there was no full-time managerial elite, liberated from primary activities, residing in Late Period centers. Historical accounts even claim that chiefs and their households worked the land (Lorandi and Boixadós 1987–88; Zanolli 2005: 171). Although these observations were made some years after the Late Period, and after the impact of Inca conquest, we believe that the descriptions apply to Late Period society.

In addition to the historical information some significant indicators of ranking, economic stratification, centralized decision-making, and social inequality are clearly missing in the archaeological record of the Late Period (see Ottonello and Lorandi 1987; Raffino 1988; Tarragó 2000). Here is the argument:

- 1) There is no evidence indicating control and management of staple production and appropriation of surplus labor and products. There are no traces of centralized storage or signs of restrictive access to productive resources.
- 2) We do not find obvious administrative areas or buildings within Late Period centers. It is surprising that in many paramount sites there are no buildings that are clearly set apart from the rest in terms of design, form, or quality. Examples of this include Cerro Colorado in the Jujuy Puna; Peñas Blancas, Yacoraite, La Huerta, Juella, and Pucará de Tilcara in the Quebrada de Humahuaca; Tastil in the Quebrada del Toro; Valdez, Mariscal, Las Pailas, and La Paya in the northern Calchaquí Valley; El Pichao, Loma Rica de Shiquimil, Famabalasto in the Yocavil Valley area; and Loma Negra de Azampay in the Hualfín area, among others (Figure 30.1).
- 3) Settlements were not assembled around central public spaces or special residential structures that may have acted as axis mundi. Rather, they constitute a continuum of residential compounds. Plazas were just empty spaces without formal arrangement. Furthermore, many large and important regional centers did not have plazas and some had more than one open, or large walled space, in different parts of the site (for instance, Los Amarillos, La Huerta, Juella, and Pucará de Tilcara in the Quebrada de Humahuaca; Tastil in the Quebrada del Toro; Mariscal, Las Pailas, and La Paya in the northern Calchaquí Valley; Quilmes and Loma Rica de Shiquimil in the Yocavil Valley area, among others). This may suggest that more than one group hosted feasts and competed for power and prestige within the same community.
- 4) There is no clear proof of corporate labor employed in the political sphere, that is, labor managed by a chief and his household to aggrandize his person, or increase their power. Contrary to the situation in the Central and South-Central Andes, in this area of the Southern Andes there are no constructions such as pyramids, mound platforms, royal tombs, etc., representing the power of a ruling elite.
- 5) More or less the same activities were undertaken in all residential compounds. Domestic spaces were the center of many activities during the Late Period and archaeological evidence shows that production activities, storage, food processing and consumption, artifact use, ritual practices, and social reproduction, among others, were, in general, not centralized activities that an elite could have easily controlled. Rather, they were dispersed among every household in the community so the diverse spheres of social life were firmly located within individual dwellings.
- 6) Archaeologists do not find clear-cut differences regarding the goods used and consumed within different houses.

- 7) Every household had access to the same means of production and tools (spindle whorls, grinding stones, molds and crucibles, ore, hoes, and obsidian).
- 8) There were not great differences among residential compounds regarding architectural style and quality, size, and their location within the site [Note 5].
- 9) It is unlikely that full-time craft specialization was widely developed in north-western Argentina during the Late Period. There are only a few cases in which archaeologists have actually found evidence of specialized workshops. The most remarkable case is a workshop for metal production found in Rincón Chico in the Yocavil Valley (González 2004). Actually, data indicate that in several cases many craft activities (such as the production of textiles, pottery, worked bone, and even metallurgy) were handled adequately within the domestic domain employing relatively simple technology.

Examining daily experiences and interactions within settlements can give us a new understanding of social life during the Late Period. Large and clustered settlements mushroomed during this era (Figure 30.7). Conglomeration of structures was due to the high position of the settlements on the landscape, in defensible although narrow spots. However, there were other towns and villages established in the valley bottoms or in other open areas (Raffino 1988: 163), where there was more room for the construction of buildings. In these cases, and despite space availability, people chose to build their houses and buildings in a crowded cell-like pattern. This shows that at some point in the Late Period the town or village became the normal way of dwelling.

Clustered residential compounds constituted Late Period sites. Household residences were the basic unit of spatial organization and settlements were created by the accretion of one residential compound next to the other. Typically the residential compounds were composed by an open patio, a variable number of large rooms, stone tombs, and sometimes a round earthen mound. In many cases they were semi-subterranean and shared walls, halls, and passages with other compounds. Low and wide walls created a network of paths that allowed movement among and above buildings (as in sites such as Yacoraite and Pucará de Tilcara in the Quebrada de Humahuaca; Tastil in the Quebrada del Toro; Mariscal and La Paya in the northern Calchaquí Valley, Tolombón, Pichao, and Quilmes in the Yocavil Valley area). In other cases, pedestrian circulation implied passing from building to building, such as in La Huerta in the Quebrada de Humahuaca and Loma Rica de Shiquimil in the Yocavil Valley. Thus, movement within these crowded centers entailed passing through, in-between, and/or above different houses and structures (Figure 30.8).

The spatial arrangement and architecture of Late Period centers put people in close proximity to one another. In these crowded settlements it was possible to hear conversations or to smell what other families were cooking. Walls were permeable to sounds and odors. By walking the elevated pathways and walls, or by crossing from building to building, people encountered their community, seeing what others were doing in their houses, and even more in the open patios and large unroofed rooms, where the majority of the daily activities were undertaken. Pedestrian circulation within these crowded centers produced constant interaction of people and households, allowing individuals to see the activities other residents, the goods they consumed, and the rituals they performed. This situation implies a high degree of communal control, with accumulation of power and material benefits so noticeable that it would be easy to restrain and regulate. Although there may have been symbolic restrictions to circulation there certainly were no material ones.

Living in a Late Period settlement entailed sharing walls, material objects, iconography, activities, experiences, and a common identity. People also shared common spaces.



Figure 30.7. Mariscal, Late Period site, northern Calchaquí Valley. (Juan Leoni and Félix Acuto)

In some sites there are groups of rooms that are not associated with patios, or a number of patios interconnected among one another but not with rooms [Note 6]. We believe that these were collective spaces where people carried out activities, overcoming the boundaries of the household [Note 7]. In these cases, it is difficult to say where a dwelling ends



Figure 30.8. Example of pedestrian circulation in a Late Period settlement: Pucará de Tilcara, Quebrada de Humahuaca. (Juan Leoni and Félix Acuto)

and another begins. In fact, the limits of the dwellings were quite indistinct. The conception of residence apparently was not like our modern, western idea, but rather the limits of dwellings, of public and private space, and of household and community, were much more flexible.

What people experienced within their settlements was not areas from which they were excluded, buildings set apart from the rest, or the materialization of political structure. Rather, they experienced a materially homogeneous landscape of residential compounds where houses were alike, including the objects employed in them. This should have promoted a sense of place characterized by feelings of communal integration and lack of differentiation. The material homogeneity of Late Period places should have encouraged a perception of everyone as equal and the same, part of the same unit. We believe that this way of dwelling produced, at least in part, a social life generating communality and tight integration. Social life had a sense of homogeneity, openness, and equality to the communal eye.

But this sense of communality experienced within Late Period centers was in tension with struggles to obtain power and hierarchy. The Late Period was also a time of competition to overcome the structural constraints of the period. Archaeological evidence indicates that within these settlements there was competition for power and prestige. In many places the presence of several plazas or large open spaces suggests that different groups or factions undertook feasts and redistributed goods, probably to gain supporters and foster prestige and power. Long-distance exchange and warfare may have been other spheres of competition and tension. Thus, during the Late Period, status and distinction still had to be competed for and negotiated. In the majority of the regions

there was not an indisputable and institutionalized ruling elite, but instead individuals and extended families, as well as political factions struggling to aggrandize power and consolidate status gains.

CONCLUSION

Approaching northwestern Argentina prehistory through a new theoretical light that privileges the study of people's lived experiences provides a novel perspective on the developmental trajectory of indigenous societies. This trajectory did not lead unequivocally from egalitarian villages to complex and internally differentiated societies, as traditional conceptions based on social evolutionism typically claim. In fact, the imposition of evolutionary categories and models of varied inspiration has obscured our understanding of northwestern Argentina's pre-Hispanic social dynamics and cultural processes, tending to blur their peculiarities and uniqueness into conformity with general schemes of social evolution. Egalitarian and communal conceptions seem to have been strong components of northwestern Argentina's societies for a very long time, interacting in a complex dynamic with trends toward the development of differentiation and institutionalized inequality. These communal notions counterbalanced the development of inequality in some periods, materializing themselves in landscapes, built environments and the artifacts of quotidian dwelling.

NOTES

1. Significant biases might affect our understanding of Early Period settlement patterns as sites of this period could be covered by meters of alluvial soils in some valley bottoms, or even under later occupations.
2. While it has been generally assumed that craft specialization existed during the Early Period for the production of certain fine ceramic, metal, stone and other objects, there is no archaeological evidence for specialized workshops in this period, with the possible exception of metallurgical workshops at Alamito sites in Catamarca (see Nuñez Regueiro 1998).
3. The chronological placement of Aguada might require revision. Recent radiocarbon assays seem to indicate that its development began much earlier, contemporary with several of the characteristic Early Period ceramics styles (see Gordillo 1996–97).
4. The jaguars represent a distant and exotic wilderness, as these animals inhabit the lowland wet forest, a natural landscape very different from the Andean highland environment in which the Aguada people dwelled.
5. Rincón Chico (Tarragó 1987) and Los Amarillos (Nielsen 2001) are conspicuous exceptions.
6. Some interesting examples of this are La Huerta in the Quebrada de Humahuaca (Palma 1998) and Mariscal the northern Calchaquí Valley.
7. A similar case is the concentration of ground stone artifacts, implying communal grinding (Tarragó 2000).

REFERENCES

- Albeck, María E., 2000, La vida agraria en los Andes del sur. In *Nueva Historia Argentina: Los Pueblos Originarios y la Conquista*, edited by Myriam N. Tarragó, pp. 187–228. Editorial Sudamericana, Buenos Aires.
- Assandri, Susana and Sofía Juez, 1996–97, Organización espacial de los asentamientos en el valle de Ambato, Período de Integración Regional. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 71–81.
- Balesta, Bárbara and Nora Zagorodny, 2003, Los frisos antropomorfos en la cerámica funeraria de La Aguada de la Colección Muñiz Barreto. *Estudios Atacameños* 24: 39–50.
- Callegari, Adriana, Fabián Campos, María Elena Gonaldi, and María Gabriela Raviña, 1996–97, Algunas consideraciones sobre la jerarquización espacial en el sitio La Cuestecilla. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 101–113.

- Delfino, Daniel, 1996–97, Primeras evidencias de La Aguada en Laguna Blanca (Dpto. Belén, Catamarca) y los indicios de una asociación contextual con Ciénaga. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 213–231.
- Gambier, Mariano, 1996–97, La expansión de la cultura de La Aguada en San Juan. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 173–192.
- Gero, Joan and María Cristina Scattolin, 1994, Hacia la comprensión de la jerarquización: un estudio desde Yutopían, valle del Cajón, Catamarca. Paper presented at the XI Congreso Nacional de Arqueología Argentina, San Rafael, Mendoza.
- González, Alberto Rex, 1961–64, La cultura de La Aguada del NO argentino. *Revista del Instituto de Antropología de Córdoba* 3: 205–252.
- , 1977, *Arte Precolombino de la Argentina. Introducción a su Historia Cultural*. Filmediciones Valero, Buenos Aires
- , 1998, *Arte Precolombino. Cultura La Aguada, Arqueología y Diseños*. Filmediciones Valero, Buenos Aires.
- and Víctor Núñez Regueiro, 1960, Preliminary report on archaeological research in Taff del Valle, N.W. Argentina. *Akten des 34 Internationalen Ameikanistenkongresses*, pp. 85–496.
- and José A. Pérez, 1972, *Argentina Indígena, Vísperas de la Conquista*. Paidós, Buenos Aires.
- , José Togo, Marta Baldini, María F. Del Castillo Bernal, and María E. De Feo, 1999, Un sitio Aguada del sector sur del valle de Catamarca: Choya 68. *Resúmenes del XII Congreso Nacional de Arqueología Argentina*: 46–47. La Plata, Buenos Aires.
- González, Luis R., 2004, *Bronces sin Nombre*. Fundación CEPPA, Buenos Aires.
- Gordillo, Inés, 1990, Entre pirámides y jaguares. *Ciencia Hoy* 2 (8): 18–25
- , 1992–94, Arquitectura y religión en Ambato. Organización socio-espacial del ceremonialismo. *Publicaciones del Centro de Investigaciones de la Facultad de Filosofía y Humanidades. Universidad Nacional de Córdoba* 47: 55–110.
- , 1996–1997, Una cuestión de tiempo. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 15–25.
- , 2004, La arquitectura ritual durante el período medio del noroeste argentino prehispánico. *Revista Andina* 39: 257–281.
- and María F. Kush, 1987, La Aguada: una aproximación iconográfica. *Revista de Antropología* 3: 40–52.
- Haber, Alejandro, 1996, El Temprano en perspectiva: investigaciones arqueológicas en Tebenquiche. *Actas y Memorias del XII Congreso Nacional de Arqueología Argentina*, Tomo XXIII: 77–81. San Rafael, Mendoza.
- Kusch, María F. and Inés Gordillo, 1997, Interacción y paisaje social en Aguada: los espacios del jaguar. *Estudios Atacameños* 14: 85–93.
- Lorandi, Ana M., 1997, *De Quimeras, Rebeliones y Utopías. La Gesta del Inca Pedro Bohorques*. Fondo Editorial, Pontificia Universidad Católica del Perú, Lima.
- and Roxana Boixadós, 1987–88, Etnohistoria de los valles Calchaquies en los siglos XVI y XVII. *Runa* XVII–XVIII: 263–419.
- Lovell, Nadia, 1998, Introduction. Belonging in need of emplacement? In *Locality and Belonging*, edited by Nadia Lovell, pp. 1–24. Routledge, London and New York.
- Nielsen, Axel E., 2001, Evolución social en la Quebrada de Humahuaca (AD 700–1536). In *Historia Prehispánica Argentina. Tomo I*, edited by Eduardo Berberían and Axel E. Nielsen, pp. 171–264. Editorial Brujas, Córdoba.
- Núñez Regueiro, Víctor, 1974, Conceptos instrumentales y marco teórico en relación al análisis del desarrollo cultural del Noroeste argentino. *Revista del Instituto de Antropología. Universidad Nacional de Córdoba* V: 169–190.
- , 1998, *Arqueología, Historia y Antropología de los Sitios de Alamito*. Ediciones Interdea, San Miguel de Tucumán.
- and Jorgelina García Azcarate, 1996, Investigaciones arqueológicas en El Mollar, Dto. Taff del Valle, Pcia. de Tucumán. *Actas y Memorias del XII Congreso Nacional de Arqueología Argentina*. Tomo XXV: 87–97. San Rafael, Mendoza.
- and Marta Tartusi, 1996–1997, Los orígenes de Aguada. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 45–57.
- Otonello, María Marta and Ana M. Lorandi, 1987, *Introducción a la Arqueología y Etnología. Diez Mil Años de Historia Argentina*. Eudeba, Buenos Aires.

- Palma, Jorge R., 1998, *Curacas y Señores: Una Visión de la Sociedad Política Prehispánica en la Quebrada de Humahuaca*. Instituto Interdisciplinario Tilcara, Universidad de Buenos Aires.
- Pérez Gollán, José A., 1986, Iconografía religiosa andina en el NO argentino. *Boletín del Instituto Francés de Estudios Andinos* XV (3–4): 61–72.
- , 2000, El jaguar en llamas (la religión en el antiguo noroeste argentino). En *Nueva Historia Argentina. Los Pueblos Originarios y la Conquista*, edited by Myriam N. Tarragó, pp. 229–256. Editorial Sudamericana, Buenos Aires.
- , Mirta Bonnin, Andrés Laguens, Susana Assandri, Leonor Federici, Mónica Gudemos, José Hierling, and Sofía Juez, 1997–1997, Proyecto Arqueológico Ambato: un estado de la cuestión. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 115–123.
- Raffino, Rodolfo A., 1977, Las aldeas del Formativo Inferior en la Quebrada del Toro (Provincia de Salta, Argentina). *Obra del Centenario del Museo de La Plata*, Sección Antropología, Tomo II: 253–299. La Plata, Buenos Aires.
- , 1983, Arqueología y etnohistoria de la región Calchaquí. In *Presencia Hispánica en la Arqueología Argentina*, edited by Eldo S. Morresi and Ramón Gutierrez, pp. 817–861. Instituto de Historia, Universidad Nacional del Noreste, Chaco.
- , 1988, *Poblaciones Indígenas en Argentina: Urbanismo y Proceso Social Precolombino*. Tipográfica Editora Argentina, Buenos Aires.
- Robin, Cynthia, 2002, Outside of houses: the practice of everyday life in Chan Noohol, Belize. *Journal of Social Archaeology* 2 (2): 245–268.
- Sempé, Carlota, Bárbara Balesta, and Nora Zagorodny, 1996–1997, Barrealito de Azampay: un sitio Ciénaga/ Aguada. *Shincal. Revista de la Escuela de Arqueología de Catamarca* 6: 35–43.
- Scattolin, María C., 1990, Dos asentamientos formativos al pie del Aconquija. El sitio Loma Alta (Catamarca, Argentina). *Gaceta Arqueológica Andina* V (17): 85–100.
- Tarragó, Myriam N., 1987, Sociedad y sistema de asentamiento en Yocavil. *Cuadernos del Instituto Nacional de Antropología* 12: 179–196.
- , 1996, El formativo en el noroeste argentino y el alto Valle Calchaquí. *Actas y Memorias del XII Congreso Nacional de Arqueología Argentina*. Tomo XXIII: 103–119. San Rafael, Mendoza.
- , 2000, Chakras y pukara. Desarrollos sociales tardíos. In *Nueva Historia Argentina: Los Pueblos Originarios y la Conquista*, edited by Myriam N. Tarragó, pp. 257–300. Editorial Sudamericana, Buenos Aires.
- y María C. Scattolin, 1999, La problemática del Período Formativo en el valle de Santa María. *Actas y Memorias del XII Congreso Nacional de Arqueología Argentina*. Tomo I: 142–153. La Plata, Buenos Aires.
- Wiley, Gordon R., 1971, *An Introduction to American Archaeology. Volume 2: South America*. Prentice-Hall, Englewood Cliffs, NJ.
- Zanolli, Carlos, 2005, *Tierra, Encomienda e Identidad: Omaguaca (1540–1638)*. Sociedad Argentina de Antropología, Buenos Aires.

Early Cultural Complexity on the Coast of Peru

SHELIA POZORSKI AND THOMAS POZORSKI

The emergence of cultural complexity on the coast of Peru almost five thousand years ago has been much debated (e.g., Engel 1957a, b; Lanning 1967; Moseley 1975; Haas and Creamer 2004; Haas et al. 2004a, b; Shady 1999, 2001, 2006 *inter alia*). This chapter critically examines this process of civilization during the Late Pre-ceramic, Initial Period, and Early Horizon. It also traces the history of archaeological investigation and cultural theory that has brought us to the current level of understanding.

LATE PRE-CERAMIC, 3000-2100 cal BC

Definition of a Late Pre-ceramic period is the result of research by many scholars over the past sixty years. Junius Bird's recognition, in the 1940s, of Huaca Prieta in the Chicama Valley (Figure 31.1) as a pre-pottery coastal fishing village paved the way for the study of the Late Pre-ceramic (Bird 1948). His subsequent excavations at Guañape in the Viru Valley documented the existence of settled coastal communities that relied heavily on marine resources but also probably practiced simple flood plain cultivation to secure vital cultigens—squash, lúcuma, common beans, lima beans, avocados, and peppers and especially the essential industrial plants: cotton and gourd.

Subsequent work by Engel (1957a, b), Lanning (1967: 57–79) and Moseley (1972, 1975) revealed additional Late Pre-ceramic sites often situated near river mouths and adjacent to protected bays that afforded access to varied marine resources. The largest Late Pre-ceramic sites were spaced at regular intervals along the central and northern Peruvian coast in a configuration that suggested loosely defined proprietary access to nearby resources. Excavations at these sites yielded a suite of shared cultigens and artifacts, including twined textiles, mussel-shell fishhooks, cotton netting, and gourd floats that make past valley-to-valley communication among these sites likely.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

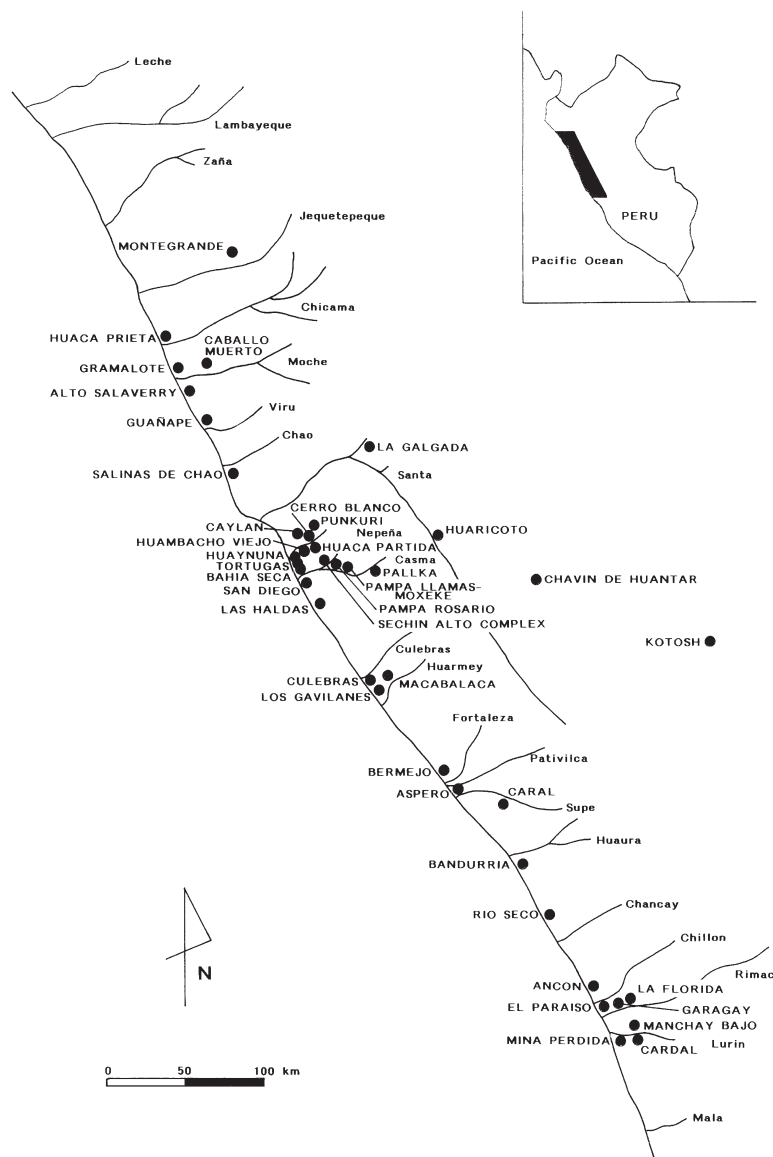


Figure 31.1. Map of north and central Peru showing the location of Late Preceramic, Initial Period, and Early Horizon sites. (Shelia Pozorski and Thomas Pozorski)

Frédéric Engel (1957a, b) coined the term “Cotton Pre-Ceramic” for the Late Pre-ceramic, recognizing the pervasiveness and importance of this industrial crop at many of the coastal sites. Moseley (1975), in particular, highlighted the significance of cotton in the maritime economy he posited for the Peruvian coast in the Late Pre-ceramic with his formulation of what has come to be called the “Maritime Hypothesis” (“Maritime Foundations of Andean Civilization” hypothesis or MFAC), discussed below.

The Maritime Hypothesis and Aceramic Sites

Not all of the numerous sites without pottery were mere coastal fishing villages. Rather, abundant evidence of monumental architecture in the form of platform mounds with associated plazas was discovered and investigated, for instance at El Paraíso in the Chillón Valley (Engel 1967; Quilter 1985), Aspero in the Supe Valley area (Feldman 1985), Río Seco near the Chancay Valley (Wendt 1964), Culebras in the Culebras Valley (Engel 1957a: 65–68; Lanning 1967), and Salinas de Chao between the Chao and Viru valleys (Alva 1986). Reports of this work and his own investigations in the Ancón area led Michael Moseley (1975) to propose the Maritime Hypothesis in his seminal book *The Maritime Foundations of Andean Civilization*. Moseley argued that civilization arose on the coast of Peru in the Late Pre-ceramic without an agricultural subsistence base, but rather through heavy reliance on abundant, reliable marine resources that supported population growth and enabled corporate labor organization of which monumental architecture was evidence. Moseley moreover proposed that the social complexity that made it possible to harness corporate labor for mound construction and other public works at these coastal settlements pre-adapted the sites' inhabitants for the subsequent Initial Period florescence when much-larger settlements were founded well inland near both arable land and optimal locations for channel intakes to provide the water for irrigation-based agriculture. Community labor, whose organization had been honed in monumental platform building, was turned to digging canals, promoting in turn, a life style dependent on farming.

With the analysis of many radiocarbon dates it became clear that several of the originally touted monumental Late Pre-ceramic sites—such as El Paraíso and Salinas de Chao—as well as the small Moche Valley site of Alto Salaverry actually lie well within the Initial Period time frame, even though these sites lacked pottery. Based on these dates, Shelia Pozorski and Thomas Pozorski (1990) proposed that such sites would be more accurately described as *aceramic*. Significantly, most of these aceramic sites with Initial Period dates were characterized by monumental architecture. Only the more modest coastal sites were without pottery, and dated earlier. They alone qualified as antecedents of settlements with monumental construction, so in view of this the Maritime Hypothesis was seriously challenged. Proposed coastal antecedents to monumental inland centers turned out to be contemporary with these inland counterparts rather than earlier. The notable exception is Aspero, which has sizeable platform mounds dating about 3000-2500 cal BC, well within the Late Pre-ceramic (Feldman 1985).

In keeping with the patterns observed elsewhere along the Peruvian coast, it was predicted that Aspero would eventually be recognized as a coastal counterpart of equally early inland, mound-dominated communities with an agricultural focus rather than a pre-pottery antecedent to Initial Period florescence (Shelia Pozorski and Thomas Pozorski 1990). Work in the Supe Valley by Zechenter (1988) in the 1980s provided tantalizing dates in the Late Pre-ceramic time range and subsequent work by Shady (1999, 2001, 2006) at Caral and by Haas and Creamer (Haas et al. 2004a, b) at other sites in the Fortaleza and Pativilca valleys have confirmed the existence of Late Pre-ceramic inland agricultural communities.

Caral and the Fortaleza-Huaura Valley Area

Recognition that many of the complex planned sites with platform mounds, plazas, and residential architecture in the Fortaleza-Huaura river valleys date to the Late Pre-ceramic focused global attention on this area. The origins of Andean civilization had been pushed

back in time and redefined, including in terms of economy. Shady's work at Caral revealed a sizeable agricultural community that produced a variety of cultigens, including beans, squash, sweet potato, avocado, and especially cotton, which were likely exchanged for marine products from Aspero and other coastal sites (Shady 2006). It seems likely that this settlement and economic pattern characterized by large, inland agricultural sites and coastal satellites spread north and south along the coast, resulting in a proliferation of even larger sites during the Initial Period. Vital components of this pre-ceramic legacy include planned centers dominated by large mounds, sunken circular plazas, an emphasis on irrigation agriculture, and maintenance of complementary coastal communities to supply vital marine protein.

The site of Caral (Figure 31.2), with published calibrated radiocarbon dates between 2600-1800 cal BC (Shady et al. 2001), is the best known Late Pre-ceramic site in the Fortaleza-Huaura area. Intensive excavations carried out there since 1995 by Ruth Shady (who changed the archaeological site name from Chupa Cigarro Grande to Caral) and her students revealed that the site measures some 66 ha in area and has seven large mounds, sometimes associated with sunken circular and rectangular plazas (Shady 1999, 2001, 2006). In addition, there is abundant evidence of smaller houses and ritual structures, including one circular ventilated hearth structure that is the earliest coastal variant of a religious phenomenon known as the Kotosh Religious Tradition (described below). The amount of labor invested in mound construction and the estimated population size led Shady (2006) to interpret Caral as the first urban site in the New World.

As Shady continued her work at Caral and documented the existence of some 17 additional Late Pre-ceramic sites in the Supe Valley, Jonathan Haas and Winifred Creamer led another team of students and colleagues in surveys of the nearby Fortaleza, Pativilca,



Figure 31.2. Central Sector mounds of the Late Preceramic site of Caral seen from the east in 1993. (Shelia Pozorski and Thomas Pozorski)

and Huaura valleys in search of additional Late Pre-ceramic sites (Haas et al. 2004a, b). To date, approximately 20 sites have been found, dated by 95 radiocarbon dates, ranging from 3100 to 1800 cal BC, obtained from samples recovered from test excavations and cleaned looters' pits (Haas et al. 2004a, b). Some of these sites are comparable in size to Caral or even larger, though in poorer condition due to modern land reclamation for agricultural and residential purposes. Nevertheless, it is clear that there was a substantial inland Late Pre-ceramic occupation spread over the four-valley area. The truly exciting aspect of the work at Caral and other Late Pre-ceramic sites in the Fortaleza-Huaura area is that for the first time large inland sites are abundantly documented in the coastal zone that required irrigation agriculture to provide enough food to support the large populations needed to build and sustain these centers.

Evidence of maize found in pre-ceramic refuse contexts at Caral raises the issue of the importance of this storable staple to the development of Peru's earliest civilization. After extensive excavations at Caral, Shady (2006) has found only a very small quantity of maize dating to the latest levels of the site, suggesting that maize did not comprise a significant portion of the diet. Bonavia (1982) described abundant maize from Los Gavilanes, a Late Pre-ceramic site at the mouth of the Huarmey Valley but, to the north and south, maize does not appear in the archaeological record until the Early Horizon, when it was very common.

The existence of an inland-coastal subsistence exchange system in the Supe area foreshadows similar subsistence exchange systems known for the Casma and Moche valleys farther north during the Initial Period (S. Pozorski and T. Pozorski 1979, 1987). However, the exact nature of the Fortaleza-Huaura exchange system may be different. The three documented coastal sites in the area—Bandurria (Fung 1988: 77) just south of the Huaura Valley, Aspero (Feldman 1985) in the Supe Valley, and Bermejo (just north of the Fortaleza Valley)—all have substantial monumental architecture themselves, unlike their later Initial Period coastal counterparts farther north. Perhaps these sites were more equal partners in the exchange system, in contrast to the later Initial Period systems in which coastal sites were essentially satellite communities, subordinate to much larger inland sites. While these three sites are smaller in area and presumably in population than many of the inland sites, the difference is not as great as in the case of the Initial Period sites. Also, because there are only three identified coastal sites presumably supplying fish and shellfish to perhaps as many as 40 inland sites, the relatively exclusive access that these sites had to marine resources may have enabled them to garner special treatment from the inland residents, such as labor to construct communal mounds for use by residents of and visitors to the coastal settlements for both religious and non-religious purposes. There was likely a greater sense of community among these coastal fishing settlements than at contemporary or later coastal fishing sites that housed far fewer people. Like other large Late Pre-ceramic sites, the three Fortaleza-Huaura settlements are fairly evenly distributed along the coastline of the area—Bandurria at the south end, Bermejo at the north end, and Aspero in the middle.

Based on currently available data for the Fortaleza-Huaura area, it seems likely that the settlement and economic pattern characterized by large inland agricultural communities with coastal satellites originated on the north-central coast ("norte chico") and then spread north and south, resulting in the proliferation of even larger sites during the Initial Period.

One specific architectural feature with origins traceable to the Fortaleza-Huaura area is the sunken circular plaza or court (Figure 31.3). Sunken circular courts have been described at coastal sites since the late 1950s (Engel 1957b; Patterson 1971; see especially Williams 1972 who effectively defined this feature and recognized its diffusion along the

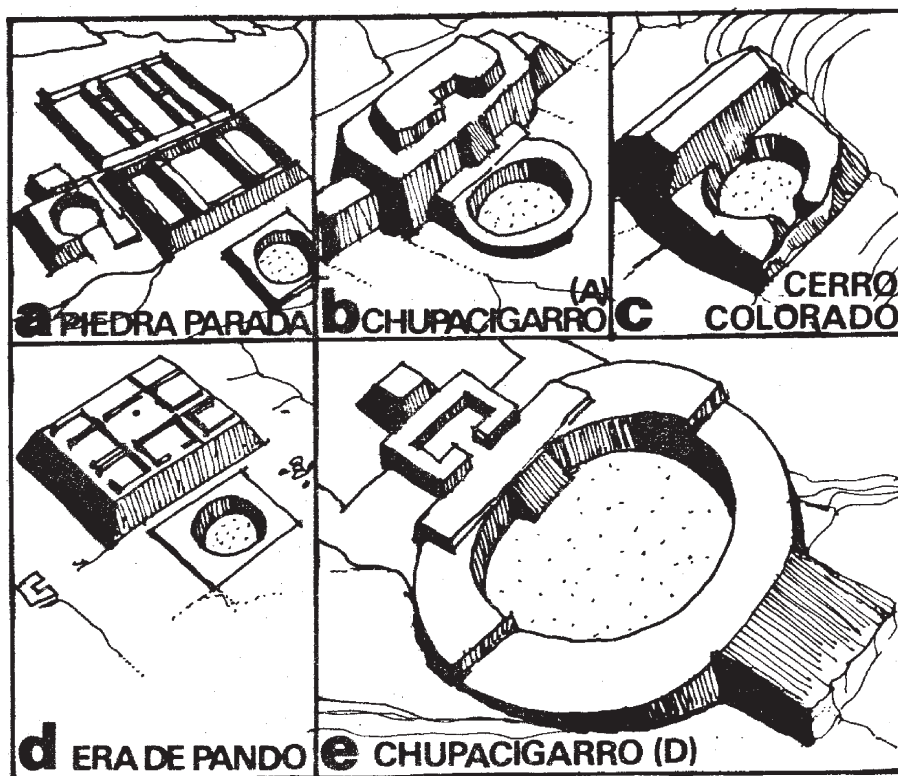


Figure 31.3. Late Pre-ceramic sunken courts as originally identified in the early 1970s by the late Carlos Williams (republished in Williams 1979: fig. 2.3)

coast; see also Fung and Williams 1970) and their distribution ranges from the Jequetepeque Valley on the north coast to the Mala Valley on the central coast (Williams 1985). Usually associated with large mounds, sunken circular courts are most often located in front of the platform and sometimes associated with an adjacent rectangular court. Most sunken circular courts are dated to the Initial Period, but with the discovery of numerous examples in the Fortaleza-Huaura area dating to the Late Pre-ceramic, it seems likely that this area originated this architectural feature.

Much additional work, including large-scale excavation, is necessary to sort out the chronological and intersite relationships among the numerous Late Pre-ceramic sites in the Fortaleza-Huaura area. Given that their dated time span covers at least 1,200 years, it is likely that the Late Pre-ceramic saw the growth and decline of different settlements or groups of settlements. It is the patterning of the sites, the duration of sites, the sizes of sites, and the determination of the activities they housed that ultimately will shed light on the origin, growth, decline, and nature of the sociopolitical organization in the Fortaleza-Huaura area during the Late Pre-ceramic.

Kotosh Religious Tradition

Another important phenomenon originating in the Late Pre-ceramic is the Kotosh Religious Tradition (Burger and Salazar Burger 1980). Buildings that characterize this tradition were

first excavated by the Japanese expedition at the highland site of Kotosh in the 1960s (Izumi 1971; Izumi and Terada 1972:129–176). Since that time, numerous similar buildings have been discovered and excavated at several highland sites (Bonnier and Rozenberg 1988; Burger and Salazar-Burger 1980, 1985; Grieder and Bueno 1985; Grieder et al. 1988: 19–67). The buildings themselves are relatively small, self-contained units, measuring 1.5–9 m across, that are usually square, contain niches in the room walls, and have a central hearth that is ventilated by one or more horizontal ventilation shafts or flues. The size and configuration of the ritual chambers vary from site to site. Most at La Galgada are rectanguloid, almost round, in shape (Grieder and Bueno 1985; Grieder et al. 1988: 19–67). Examples at Huaricoto are considerably smaller than the ones at Kotosh and tend to be rounded in shape (Burger and Salazar-Burger 1980, 1985, 1986). The most likely explanation for these structures is that they are private ritual chambers for small groups of people who focus on the central hearth as part of a heating ritual, somewhat analogous to the sweat houses used among many Native American groups in North America although the latter have far less construction (T. Pozorski and S. Pozorski 1996).

Two pre-ceramic ventilated hearth structures are known from the coast at Caral in the Supe Valley (Shady 2006) and at Huaynuná in the Casma Valley (T. Pozorski and S. Pozorski 1990; Figure 31.4). The example from Caral is a round structure on a rectangular platform with four subfloor ventilation shafts extending to the platform edges (Shady 1999, 2001). The hearth at Huaynuná is located within a small rectangular room and is ventilated by a trough in the floor that extends toward the room entrance (T. Pozorski and S. Pozorski 1990; Figure 31.4). Despite the differences in overall shape, it is likely that there was a connection, probably through rituals and belief systems, between these coastal examples and the rectangular to circular temples with hearths in the highlands. The ultimate origin of what crystalized into the Kotosh Religious Tradition may lie in the coastal



Figure 31.4. Excavation in progress on the ventilated health structure found at Huaynuná. In the foreground is the ventilation trough that passes through the entrance to the structure. (Thomas Pozorski and Shelia Pozorski)

zone because the earliest dated ventilated hearth structure is at Caral. Construction and use of such ritual chambers continued into the Initial Period at some sites (Burger and Salazar-Burger 1980; T. Pozorski and S. Pozorski 1996).

INITIAL PERIOD, 2100-1000 cal BC

Sandwiched between the Late Pre-ceramic and the Early Horizon, phases championed by Bird (1948) and Tello (1930, 1942, 1943) respectively, as *the* time of decisive cultural innovations, the Initial Period, if recognized at all, was generally viewed as “marking time” between the pioneering permanent coastal settlements of the Pre-ceramic and the highly-developed Chavín “civilization” (Bennett and Bird 1960: 86–91; Kauffmann 1973; Lumbreras 1974: 50–57; Mason 1969: 39–43). The discovery of pre-Chavín ceramic levels in excavations at Guañape by the Viru Valley Project demonstrated the existence of a discrete early ceramic period and with this the Initial Period began to be defined (Strong and Evans 1952: 206–209; Willey 1953: 37, 42–43). The original full name of this period—Initial Period of Pottery Use—makes clear that it was marked by the appearance of ceramics. In addition, true weaving gradually replaced twining for textile manufacture, and cultigens recovered from sites like Guañape and coastal Ancón communities documented agricultural practices.

The Initial Period was perceived as a continuation of pre-ceramic lifeways enriched by some technological innovations such as ceramic production and weaving of simple textiles (Bennett and Bird 1960: 91–102; Bushnell 1963: 43–56; Mason 1969: 39–43). This view began to change in the 1970s when radiocarbon dates from inland mound sites revealed that most monumental architecture in the coastal zone dated prior to the Early Horizon (Burger 1981; Pozorski 1975; Ravines 1982: 164–165). A “radiocarbon revolution” has redefined the Initial Period (2100-1000 cal BC) as a dynamic time of remarkable cultural achievements. Suddenly, coastal iconography, replete with fanged heads, spider motifs, and profile felines, and its associated material culture were recognized as antecedent to the Chavín phenomenon rather than a coastal manifestation or variant of it. This revised view of the Initial Period resulted in fieldwork in coastal valleys from Lambayeque to Lurin that has defined at least half a dozen cultural developments or polities (Burger 1985, 1987, 2003; Fung 1988; T. Pozorski and S. Pozorski 1987; Shimada 1982; Tellenbach 1986; Zoubek 1998).

Inland mound sites, with spectacular mud friezes that occasionally retained polychrome paint, were discovered by Luis Watanabe and later by Thomas Pozorski at Huaca de los Reyes (Moseley and Watanabe 1974; T. Pozorski 1975) in the Moche Valley and by Rogger Ravines and William Isbell at Garagay (Ravines and Isbell 1975) in the Rimac/Chillon Valley. Equally significant was a suite of associated radiocarbon dates that placed these and other sites near Huaca de los Reyes squarely within the Initial Period. The new data prompted archaeologists to take another look at similar sites in the north and north-central Peruvian coastal region. In time, additional sites were excavated, more radiocarbon dates were secured, and the Initial Period was redefined. Las Haldas and La Florida further south were attributed to the Initial Period (Grieder 1975; Matsuzawa 1978; Patterson 1985).

Notably, the Initial Period was marked by a settlement pattern change. Most of the largest sites were located well inland at optimum locations for canal intakes. Clearly, this represented a shift in subsistence priorities because proximity to arable land had taken precedence (Moseley 1972). Ties to the coast were maintained, however, by establishing and maintaining satellite settlements to ensure a reliable supply of sea food that provided essential protein (S. Pozorski and T. Pozorski 1987: 114). Inland Initial Period sites flourished

in most valleys of the north and central coast, culminating in well-planned cities dominated by some of the largest structures in the New World. We now know, based on data from Caral and other Fortaleza-Huaura sites, that this pattern of juxtaposed inland capitals and coastal satellites began in the Late Pre-ceramic and is likely to have spread north from that source. A notable exception is the desert shoreline site of Las Haldas, the capital and largest site of the Las Haldas polity, which was centered on the coast and probably maintained inland satellites (S. Pozorski and T. Pozorski 2006).

The most extensive data on more typical valley-wide Initial Period developments come from the Moche, Casma, and Rimac valleys. Investigators working in each of these valleys excavated multiple, complex, mound-dominated sites. As a result, distinct socio-political trajectories have been recognized, ranging from state-like polities characterized by immense corporate-labor constructions in the north (S. Pozorski and T. Pozorski 1992, 1994a; T. Pozorski and S. Pozorski 2005) to loosely organized communities in the south where monumental construction was achieved through gradual accretion of many small construction phases more consistent with periodic renewal (Burger 1987, 1992).

Caballo Muerto Complex of the Moche Valley

Efforts to explore Initial Period developments on a regional scale began with fieldwork by Claude Chauchat, Thomas Pozorski, and Luis Watanabe at the site cluster known as the Caballo Muerto Complex in the Moche Valley. Huaca de los Reyes (Figure 31.5), the only Caballo Muerto Complex site lying outside modern cultivation, received most attention because of its excellent state of preservation and especially spectacular friezes adorning its

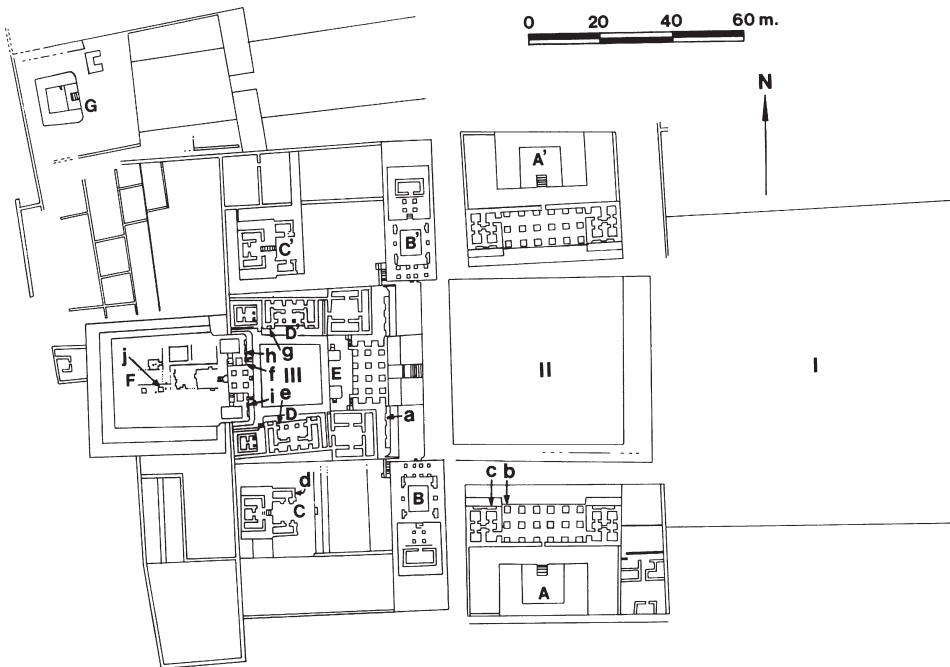


Figure 31.5. Plan of the Moche Valley site of Huaca de los Reyes. (Thomas Pozorski)

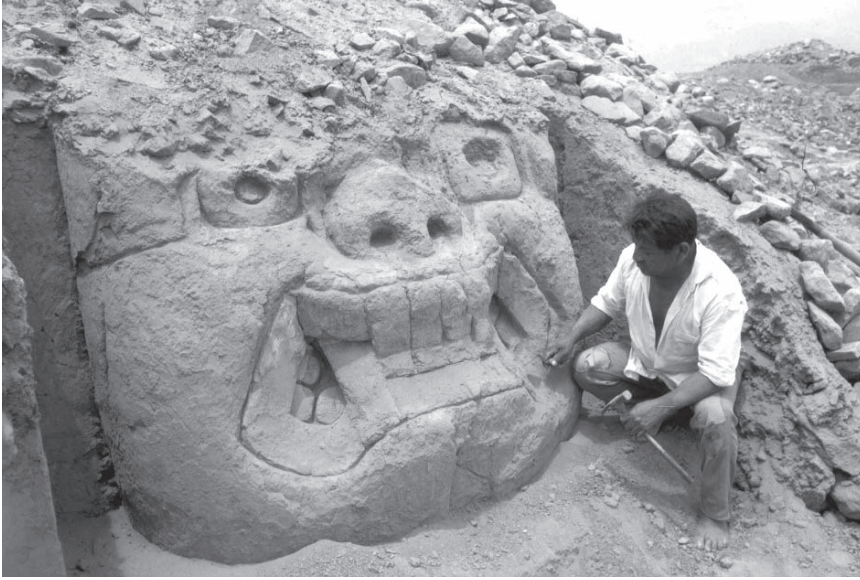


Figure 31.6. A colossal head, one of the most publicly-visible friezes at Huaca de los Reyes. (Thomas Pozorski)

facade (Figure 31.6). T. Pozorski likened the main mound to a modern-day church adorned with deities and possible culture heroes. Noting the U-shaped layout enclosing plazas and courts that decreased in size as a visitor moved up into the heart of the mound, he postulated increasingly stringent restrictions on access. General visitors probably would have had access to the largest plazas from which the colossal heads of likely creator deities were visible. Visitors allowed more intimate access would have beheld more exclusive anthropomorphic figures representing specialized deities or culture heroes (T. Pozorski 1980, 1982).

Excavations at seven additional Caballo Muerto mounds revealed differences in layout, ceramics, and radiocarbon dates from the Initial Period into the Early Horizon. At Huaca Herederos Chica midden rich in marine shellfish was deposited on the ground when that site was first occupied. Concurrently at Gramalote, on the coast, the source of the Huaca Herederos Chica shellfish was discovered, revealing the symbiotic relationship between valley and coast that characterized big settlement systems in the Initial Period (S. Pozorski and T. Pozorski 1979).

Casma Valley Sites

In 1980, Shelia Pozorski and Thomas Pozorski set out to further explore early sites within the Casma Valley that had been surveyed and excavated by Tello (1956), Collier (1962), and Thompson (1962) decades before. Their long-term study defined the Moxeke polity or culture, a phenomenon so spectacular for its time period that it warrants consideration as an early state. The Moxeke polity dominated both branches of the Casma River system by strategically locating the Pampa de las Llamas-Moxeke center (Figure 31.7) in the southern Casma branch and the larger Sechín Alto Complex (Figure 31.8) within the northern Sechín branch. The Sechín Alto Complex consists of the Sechín Alto site, Taukachi-Konkán, Sechín Bajo, and Cerro Sechín. Fieldwork at Pampa de las Llamas-Moxeke as well as

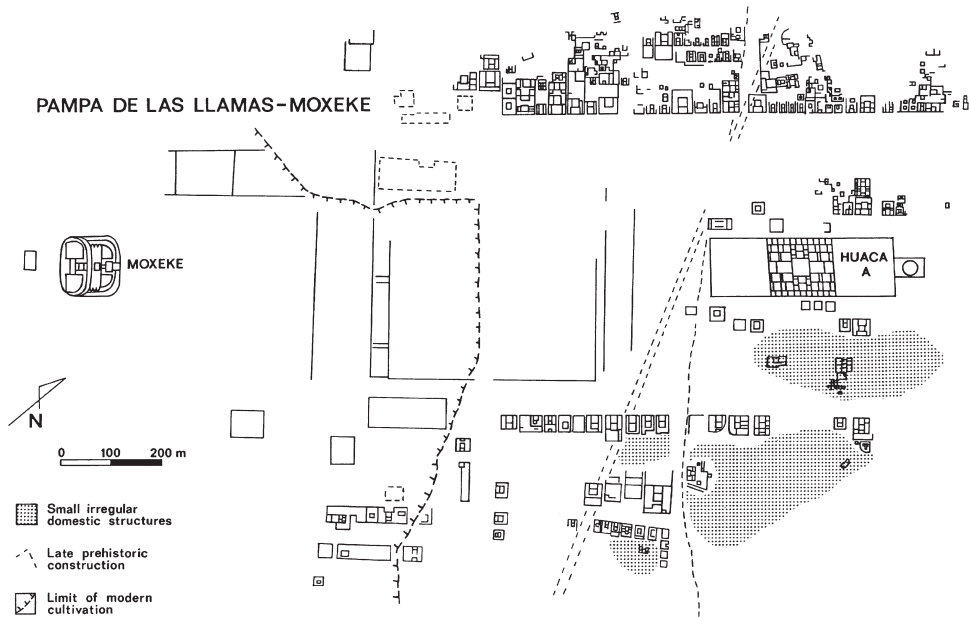


Figure 31.7. Map of the site of Pampa de las Llamas-Moxeke in the Casma Valley showing the main mounds of Moxeke and Huaca A, numerous aligned mid-sized mounds, and residential zones. (Shelia Pozorski and Thomas Pozorski)

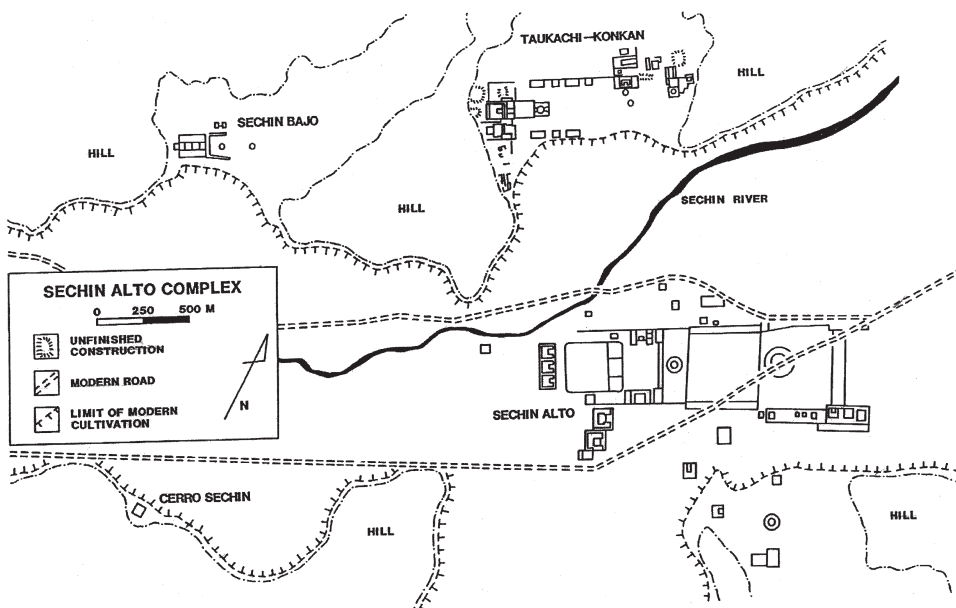


Figure 31.8. Map of the Sechín Alto Complex in the Casma Valley, showing the component sites of Sechín Alto, Taukachi-Konkán, Cerro Sechín, and Sechín Bajo. (Shelia Pozorski and Thomas Pozorski)

Cerro Sechín, Taukachi-Konkán, and Sechín Alto within the Sechín Alto Complex reveals that all the major inland mound sites, five sites in all, were contemporary for much of the polity's existence and comprised interrelated parts of the same political unit (S. Pozorski and T. Pozorski 2002; T. Pozorski and S. Pozorski 2005).

Component sites of the Moxeke polity shared many features, including planning, alignment along a central axis established by a principal mound, sunken circular courts, rows of mid-sized administrative structures, and use of a specific modular architectural unit as an emblem of authority (S. Pozorski and T. Pozorski 1992, 1994b). The principal mounds, however, have distinct surface configurations reflecting their varied and complementary functions within the Moxeke polity. The mound of Moxeke at Pampa de las Llamas-Moxeke has been described as a temple because of the massive anthropomorphic friezes that would

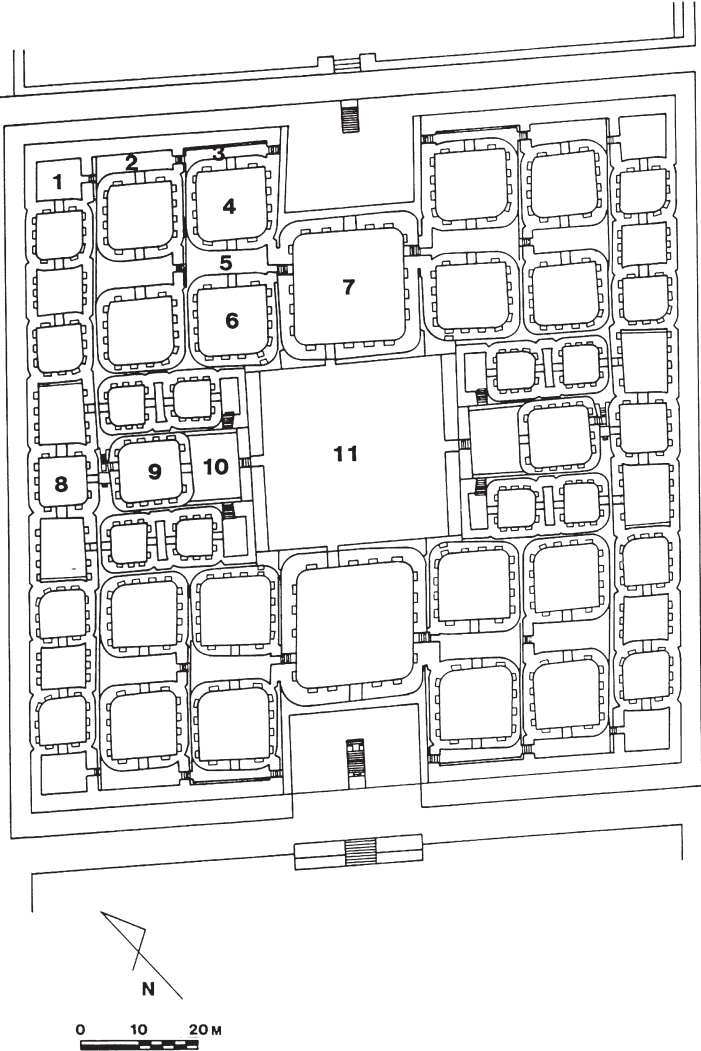


Figure 31.9. Huaca A at Pampa de las Llamas-Moxeke showing the modular room units that comprised this storage structure. (Shelia Pozorski and Thomas Pozorski)

have been visible from the large plazas the mound faces. In contrast, Huaca A (Figure 31.9), at the same site is interpreted as an immense storage structure or warehouse. The summit of this mound is covered by 38 repetitions of a modular architectural form, designated the square-room unit, which has rounded exterior corners, wall niches, raised thresholds, and bar-closure mechanisms to restrict access. Pollen, textile fragments, and remains of endemic rodent pests from the rooms and wall niches suggest that food and valuables were stored within the Huaca A rooms (S. Pozorski and T. Pozorski 1991).

A third mound function vital to the success of the Moxeke polity was documented at Taukachi-Konkán (Figure 31.10) where the principal mound, known as the Mound of the Columns, was interpreted as a royal residence or palace. The front portion of the mound summit is occupied by clean, symmetrically laid-out rooms, covered by a roof supported by more than 100 columns. Square-room-unit modules are less common at Taukachi-Konkán, but more varied in form and function. Two examples identical to modules on Huaca A likely also served a storage function—to house valuables given and/or received by the high-status occupants of the Mound of the Columns. Other modular units had low niches, appropriate for use as benches, suggesting these rooms served as small-group audience chambers. The rear of the Mound of the Columns contains the ruler's quarters, accessible only through a narrow passageway. This zone is an irregularly laid-out collection of large and small platforms of varied heights and sizes suitable for such day-to-day activities as sitting, sleeping, and eating. Food preparation took place off the Mound of the Columns where a kitchen area is reached via a narrow staircase down the south side of the mound. Subfloor storage chambers, hearths, platforms, and a possible earth oven (*pachamanca*) define the functions of this complex (T. Pozorski and S. Pozorski 1999; S. Pozorski and T. Pozorski 2002).

The main Sechín Alto site mound, the largest single structure within the Moxeke polity, probably served as its administrative center; however, specific functions are difficult



Figure 31.10. View of Taukachi-Konkán, in the Casma Valley, from a hillside showing the Mound of the Columns with its circular court that establishes the orientation for subsidiary structures at the site. (Shelia Pozorski and Thomas Pozorski)

to determine because the earlier phase is deeply buried. The main mound achieved its current areal dimensions of 250×300 m early in its history when Pampa de las Llamas-Moxeke and Taukachi-Konkán were also occupied. At this time, the basal mound was built up to a height of 23 m. Rising 9 m above the center of this stone and mud base was a solid rectangular block, $90\text{ m} \times 30\text{ m}$ in area, made of cone-shaped adobes. The summit of this conical adobe platform was probably a sacred zone with rows of square columns decorated by polychrome friezes lining both long sides. Square-room-unit modules bordered the conical adobe area on the east (S. Pozorski and T. Pozorski 2002; T. Pozorski and S. Pozorski 2005).

While the inland agricultural settlements were flourishing, ties were also maintained with the coast to ensure a steady supply of vital marine protein. Coastal satellites that supplied these inland centers include an Initial Period component of Huaynuná, Initial Period Tortugas, and Initial Period Bahía Seca. Bahía Seca contains a mid-sized administrative structure, virtually identical to examples from Pampa de las Llamas-Moxeke and Taukachi-Konkán, suggesting that this coastal site functioned as an administrative center to funnel resources collectively from all coastal sites (S. Pozorski and T. Pozorski 1992).

Late in the Initial Period, the Moxeke polity began to weaken. Factors that likely contributed to its demise include an El Niño event around 1400 cal BC, internal strife originating at Pampa de las Llamas-Moxeke in the southern branch, and increased threat posed by the coastal Las Haldas polity even further south (S. Pozorski and T. Pozorski 2006). In response, the Moxeke polity consolidated its capital into a single site: the main Sechín Alto site (Figure 31.8). At this time, the summit of the mound was raised some 9 m to equal the height of the conical adobe core, an immense central room was constructed, and at least one audience room was built on the south wing. Possibly in an effort to better serve polity citizens, a series of plazas was constructed, lined on either side by mid-sized mounds and extending 1.2 km east from the main mound. Two of these plazas contained sunken circular courts, possibly locations for more intimate public events.

Numerous features of the Moxeke polity, taken collectively, make it a candidate for the earliest Andean state. Precise and consistent planning are evident both within and among the component sites of the polity. At Pampa de las Llamas-Moxeke, where preservation is optimal, completed, incomplete, and marked-off areas reveal that a preconceived plan was followed through the long history of the site. This master plan was transmitted across some 500 years, representing several generations of successive leaders and indicating a hierarchy of rulers through whom ideas passed along with authority. The magnitude of construction projects, especially at Sechín Alto, attests to the strong coercive powers vested in polity leaders. Unlike mound-dominated sites on the central coast, which were constructed in many small phases, the Casma Valley mound sites and other examples north of the Pativilca-Huara area were built in very few large phases. Excavations on Huaca A at Pampa de las Llamas-Moxeke and at the main Sechín Alto mound detected two phases. At the Sechín Alto site, the enormity of the construction—which resulted in a mound summit large enough to hold 15 football fields—was complemented with immense stones measuring 2 m or more on a side that comprised its facade (S. Pozorski and T. Pozorski 2002; Figure 31.11; see Burger 1992: fig. 63).

Further evidence of the Moxeke polity's complexity is its multi-site organization with several inland mound sites as well as coastal settlements, all with distinct yet complementary functions constituting an interdependent settlement system. Collectively, these vital parts made up the Moxeke polity. Square-room-unit modular architectural is the essential component of all Moxeke polity excavated sites, consistently occurring in contexts associated with authority (S. Pozorski and T. Pozorski 1994b). The primary spaces at Moxeke



Figure 31.11. Immense shaped stones forming the façade of the main Sechín Alto mound. (photo: Shelia Pozorski)

and Cerro Sechín are square-room-units. The form was repeated 38 times on Huaca A, and in lesser numbers on the principal mounds at Taukachi-Konkán and the Sechín Alto site. Modules also form compounds encircling Huaca A at Pampa de las Llamas-Moxeke, presumably to regulate access; additional examples comprise the central rooms of the mid-sized administrative structures; and square-room-units occur within the low-status residential architecture where they may have regulated craft production. Such consistency with respect to layout and spatial context reveals that various segments of the Moxeke polity understood and used the same administrative “language” in which the square-room unit served as an emblem of polity authority.

When the component sites of the Moxeke polity are examined, a clear hierarchy of site sizes and complexity is evident. The largest and most complex site is the probable capital, the Sechín Alto site, whose principal mound was the largest structure in the New World during its time. Second to the Sechín Alto site are lesser centers of Pampa de las Llamas-Moxeke and Taukachi-Konkán, as well as tertiary centers, Sechín Bajo, and Cerro Sechín. Bahía Seca, the coastal administrative center, is a fourth-tier site, which would have managed marine resource procurement at the subsidiary, fifth-level, Initial Period coastal sites of Huaynuná and Tortugas. Clearly, monumental construction, precise site planning, and emblematic architectural units were the media through which conspicuous consumption and expressive culture were manifested by this early state, the Moxeke polity.

The Central Coast

South of the Fortaleza-Huaura area, another interconnected three-valley area witnessed the construction of large mound sites during the Initial Period. This area consists of the Chillón, Rímac, and Lurín valleys of the central coast. Significantly, monumental construction took a different form in this central coast zone compared to the north-central

and north coast. El Paraíso, often reported as a Late Pre-ceramic site because of its lack of ceramics (Engel 1967; Quilter 1985), is located in the Chillón Valley. However, El Paraíso has 16 radiocarbon dates that range from 2190-1260 cal BC (Quilter 1985: table 1), mostly coinciding with dates from Initial Period mounds in the area that do have ceramics (see above). Consequently, we classify El Paraíso as an aceramic construction, an anachronistic holdover from earlier pre-ceramic times.

In the Rimac Valley, the site of La Florida yielded some of the earliest radiocarbon dates (2040-1980 cal BC) ever found associated with an inland pottery-bearing site along the Peruvian coast (Patterson 1985: 64). This site is therefore one of the earliest U-shaped mound sites known in the central coastal zone, where it seems to have established a new pattern for mound architecture that lasted until the end of the Initial Period and even into the early part of the Early Horizon (Burger 1992, 2003). Garagay, the other dated Initial Period site in the Rimac Valley, was partially excavated in the 1970s by Ravines and Isbell (1975). There, a series of impressive polychrome mud friezes were found that looked “Chavín” in design but were securely dated to the Initial Period (Ravines 1982). This association was a key element in the “radiocarbon revolution” that led to the recognition of the importance of the Initial Period by the end of the 1970s.

In the 1980s, Richard Burger and Lucy Salazar-Burger began research on early mounds in the Lurín Valley, subsequently carrying out substantial excavations at Cardal, Mina Perdida, and Manchay Bajo (Burger 1987, 1992, 2003; Burger and Salazar-Burger 1991, 1998). At Cardal, several sunken circular courts were excavated and an impressive mud frieze was uncovered in the atrium of the main mound. Radiocarbon dates placed the site in the late Initial Period but continuing into the Early Horizon until about 800 cal BC. A major discovery here was that, despite the large size of its central mound, the principal mound of Cardal was built over a long period of time in small construction phases, leading the investigators to conclude that a relatively small-scale community-based society could have built it instead of a larger and more hierarchically organized society (Burger 1992: 73–75). Subsequent investigations at Mina Perdida and Manchay Bajo have encountered similar multi-phase construction, again leading the investigators to conclude that a relatively small, local society was responsible (Burger and Salazar-Burger 1991, 1998). All three sites overlap in time, between 1000 and 600 cal BC, and so were probably competing centers that hosted ritual and non-ritual gatherings for the local populations that built them (Richard Burger, personal communication, 2006).

EARLY HORIZON (1000-200 cal BC)

A horizon, by definition, is characterized by a widespread culture that lasted a relatively short time (Willey and Phillips 1958). The Chavín culture, recognized and promoted by Tello over 60 years ago, was believed to be that widespread culture (Tello 1930, 1942, 1943, 1960). Since that time, however, questions have arisen concerning the Chavín culture and the Early Horizon in general. In the 1940s, Rafael Larco Hoyle defined and named the coastal Cupisnique culture, which he promoted as evidence for an earlier coastal manifestation of Chavín culture, thereby questioning Tello’s ideas of a highland origin (Larco 1941, 1946: 149–150, 1948). As early as 1951, Gordon Willey recognized a problem with the definition of the Chavín culture in the archaeological record (Willey 1951). According to the strict definition of that phenomenon, only objects (ceramics, stonework, bone and shell artifacts) decorated in the style manifest at the type site of Chavín de Huántar should be considered

part of Chavín culture that included fantastic renderings of felines, snakes, and raptorial birds among other beings. This definition, however, seemed overly restrictive to numerous scholars who expanded the archaeological characteristics of Chavín culture to include: 1) specific types of incised pottery found with other artifacts decorated in the Chavín style; 2) additional types of pottery associated with the incised pottery; and/or 3) stone or adobe-brick mounds characterized by a U-shaped architectural plan, particularly mounds adorned with mud friezes or painted murals (Bennett and Bird 1960: 91–102; Bushnell 1963: 43–56; Mason 1969: 43–59). Most commonly, the Chavín culture was interpreted as a religious cult spread by peaceful means throughout north and central Peru, perhaps along established trade routes (Patterson 1971: 41–46). An implicit or sometimes explicit assumption was that the religious cult began at, and expanded from the type site of Chavín de Huántar in the north-central highlands (Bird and Bennett 1960; Bushnell 1963; Tello 1960), although some scholars favored a coastal origin for the cult (Larco Hoyle 1941).

In the highlands, Chavín de Huántar was partially excavated by Tello in the 1940s, but then its burial by a landslide, retarded research for several decades. In the 1960s, a Japanese team conducted extensive excavations at Kotosh, a deeply stratified site that yielded valuable ceramic and architectural information relating Chavín to other archaeologically defined cultures dating both earlier and later (Izumi 1971; Izumi and Terada 1972). On the coast, the major excavated evidence believed at the time to pertain to the Chavín culture was obtained by the partial clearing in the 1930s of the Punkurí and Cerro Blanco mounds in the Nepeña Valley and the Moxeke and Cerro Sechín mounds in the neighboring Casma Valley (Tello 1943). Small stratigraphic excavations in midden deposits on the north and central coasts helped flesh out chronological details (Strong and Evans 1952), but these data were usually overshadowed by more spectacular artifacts, that almost invariably came from looted contexts (Bushnell 1963; Roe 1974; Willey 1971).

The Rowe Seriation

Scholarly attempts were made to establish both a time frame for the Chavín culture, and to understand its spread over a wide area of Peru. John Rowe (1960) first established the horizon/period chronological framework that is still used today by many Andean scholars, replacing more interpretive terms like “Cultist Period” (Bennett and Bird 1960: 91–102). According to this scheme the Early Horizon was the period of pan-Andean Chavín cultural influence. Rowe then turned his attention to the Chavín culture itself. Through careful examination of architecture at the site of Chavín de Huántar he proposed a construction sequence that he used to support a long stylistic chronology of Chavín stone carvings and designs at that site. He then used stylistic comparison with hundreds of ceramic vessels from burials in the Ocucaje area of the Ica Valley on the south coast to show that stylistic changes followed developments in sculpture at Chavín de Huántar, documenting continuous interaction (Rowe 1962, 1967). An assumption behind this analysis was that Chavín de Huántar was the source and that changes began there and spread outward. Most scholars embraced Rowe’s stylistic sequence for the clarity and order it appeared to bring to a complex phenomenon; some expanded upon his conclusions, culminating in an extreme extrapolation of the sequence by Peter Roe (1974).

Redefining the Extent of Chavín

During the mid-1970s through the early 1980s extensive excavations at Huaca de los Reyes (T. Pozorski 1975, 1980, 1982), Garagay (Ravines and Isbell 1975), Cerro Sechín (Samaniego

et al. 1985), and Chavín de Huántar itself (Burger 1981) uncovered an array of data that did not fit the Rowe Chavín stylistic sequence. Coastal sites yielded radiocarbon dates that were much older than dates from Chavín de Huántar, although investigators were initially reluctant to accept these dates and their implications. A case in point is the site of Huaca de los Reyes, in the Moche Valley. Huaca de los Reyes has a U-shaped plan, believed at the time of discovery to be diagnostic of a classic Chavín center. When the first mud friezes were uncovered and published with radiocarbon dates in the early 1970s (Moseley and Watanabe 1974; T. Pozorski 1975), the immediate reaction of the academic community was to attempt to fit the frieze designs into Rowe's Chavín stylistic sequence. The consensus at the time was that the site dated to the latter part of the Rowe sequence despite the fact that three of the four radiocarbon assays predated 1300 cal BC, well before any published date for the site of Chavín de Huántar. It was only with the publication of Burger's (1981) seminal article on the late dating of Chavín de Huántar, relative to the coastal sites of Huaca de los Reyes, Garagay, and Cardal, that scholars accepted the idea that most coastal U-shaped mounds decorated with mud friezes were constructed during the Initial Period, before 900 or 1000 cal BC, rather than during the Early Horizon, so new interpretations of cultural dynamics were required. More than a quarter-century of further investigations has continued altering and improving our understandings of Chavín culture, the Early Horizon, and the Initial Period.

Fieldwork at Chavín de Huántar since 1975

Based on his excavations at Chavín de Huántar and especially at the site of Huaricoto in the Callejón de Huaylas, Burger proposed a much narrower time frame (400–200 cal BC) for the spread of the Chavín religious cult (a Chavín horizon) over a fairly large area of the central and north-central highlands as well as along much of the Peruvian coast (Burger 1981, 1985, 1992; Burger and Salazar-Burger 1980, 1985). Archaeologically, Burger defined this spread as coinciding with the dissemination of Janabarriu style pottery (black ware decorated with impressed circles, circles and dots, S-shapes) along with other artifacts bearing Chavín-style iconography. This proposal was met with enthusiasm by many scholars because it seemed to clarify a complex situation and reinterpret the Chavín religious cult as a true horizon, i.e., a short time period dominated by a short-lived but widespread culture (Willey and Phillips 1958). The Early Horizon, from its earliest formulation, had encompassed an unrealistically long span of time, usually 700–1000 years (Lanning 1967: 25; Rowe and Menzel 1967: ii). Thus, Burger's proposal seemed more reasonable, at least regarding the spread of the Chavín religious cult.

Unfortunately, by collapsing the duration of the Early Horizon to 200–300 years, the earlier Initial Period increases; its length expanding from 900 to more than 1500 years. This lengthened Initial Period is problematic for scholars, especially the time span between 1000 and 500 cal BC, because by about 1000 cal BC, many of the Initial Period coastal mound centers were abandoned, creating a time gap from about 1000–600 cal BC, at least along the coast. However, data from coastal sites in the Nepeña Valley (Cerro Blanco, Huaca Partida) and the Lurin Valley (Cardal, Manchay Bajo) reveal occupations lasting until 800–600 cal BC. And some sites were reoccupied by 500 cal BC or later by local cultures only marginally affiliated with the Chavín religious cult. Perhaps the gap is already disappearing (Burger 1987, 2003; Burger and Salazar-Burger 1991; S. Pozorski and T. Pozorski 1987; T. Pozorski and S. Pozorski 2005; Shibata 2006).

In the early 1990s, building on his earlier work on Chavín, Burger painted an eloquent picture of how the Chavín religious cult spread during the late Early Horizon (Burger

1992: 225–227). This phenomenon was characterized by a stratified society where power and prestige were gained through religious ideology, although elites appropriated control of long-distance trade and exotic goods. Archaeologically, the Chavín religious cult (or Chavín horizon or civilization) is differentiated from earlier Initial Period cultures by the appearance of burials containing wealth items such as *Spondylus* shell, obsidian, and, most importantly, gold and silver artifacts (Burger 1992: 225–227). According to Burger, complex society started in the highlands with the Chavín civilization. We take issue with Burger's characterization of coastal Initial Period societies as lacking societal complexity (see Initial Period section above), as well as his inferences about the extent and influence of the Chavín religious cult.

Burger (1992) correctly distinguished the numerous Initial Period sites as separate from the Chavín phenomenon; and by doing so, he eliminated the U-shaped mounds that for decades had been the assumed diagnostic of Chavín presence along the coast. When this happened, much of the purported coastal evidence for Chavín disappears. What remains of the archaeological evidence for the spread of the Chavín religious cult are an assortment of ceramics, shell and bone artifacts, metal artifacts, stone artifacts, textiles, petroglyphs, and some decorated architecture tied to the Chavín religious cult primarily based on artistic style. Ceramics are by far the most common artifacts of the Chavín religious cult. Fragmentary Janabariu type sherds have been found in secure, often dated contexts, well beyond Chavín de Huántar (e.g., Burger and Matos Mendieta 2002). Most spectacular whole ceramic vessels portraying feline heads or other fantastic beings come from looted contexts (Burger 1992: 214–216) and are attributed to the Chavín horizon based on motifs that they share with Chavín stone sculpture or with more securely dated sherds from stratigraphic contexts or architectural clearings. Many of the other classes of artifacts have little or no context, having been looted or otherwise unscientifically recovered from, often unknown, regions of the coast and highlands.

This brings us to current investigations at Chavín de Huántar by John Rick and associates (Kembel 2001; Kembel and Rick 2004; Rick 2005). Intensive mapping and excavation reveal that the architectural and sculptural history of the site is much more complex and long-lived than Rowe's simple Old Temple/New Temple seriation in the 1960s. Construction at Chavín de Huántar expanded both horizontally and vertically during 700 years, from 1300 to 600 cal BC (Rick 2005). Throughout this time the Chavín elite were manipulating the Chavín cult and its accouterments to their own ends as a means to consolidate power and status (Rick 2005). The ramifications of these new data, including the radiocarbon dates, have yet to be determined for a definitive understanding of the Chavín phenomenon.

A Scenario for Chavín Consolidation and Expansion

We believe that Chavín was an amalgamation of ideas derived from outside the highland site proper. Tello (1942) recognized this when he noted elements in the iconography at Chavín de Huántar that suggested a tropical forest source. As the chronological placement of coastal sites has been revealed by radiocarbon dating, elements of these sites' ceramics, architecture, and iconography can be recognized as the probable influences on Chavín, as ideas moved from coast to highlands. For instance, the stirrup-spout bottle has a long history on the northern Peruvian coast and greater antiquity further north in Ecuador. It is likely that the bottle form with a narrow, trapezoidal-shaped stirrup spout that is typically described as Cupisnique provided the inspiration for Chavín stirrup-spout bottles. Once integrated into the Chavín culture, the bottle changed: the spout became more rounded

in arc, fatter in cross-section, and often decorated (Burger 1991:189; Elera 1993:252; S. Pozorski and T. Pozorski 1987:58–59, 68–69). Especially noteworthy examples of architectural traits absorbed by Chavín are the U-shaped mound form and the often-associated sunken circular plaza that seem to have originated in the Fortaleza-Huara zone of the north-central coast (Shady 2006). Ideas, and perhaps belief systems, reflected in the coastal iconography were also incorporated by Chavín: profile felines depicted in friezes at Huaca de los Reyes and Pampa de las Llamas-Moxeke appear in the stone sculpture bordering Chavín de Huántar's sunken circular plaza, and minor elements of other Huaca de los Reyes friezes (pendant snake heads, agnathic jaws) are also duplicated in the more ornate Chavín reliefs (T. Pozorski 1975, 1980, 1982; S. Pozorski and T. Pozorski 1986).

Chavín de Huántar probably consolidated its power as elites gathered artifacts, architecture, iconography, and ritual from diverse arenas to solidify new social positions. With this power base a Chavín polity aggressively colonized certain areas. We interpret new data from the lower Nepeña Valley mound sites of Cerro Blanco and Huaca Partida as indicating they were Chavín outposts, based on coincident iconography, ceramics, and radiocarbon dates (Koichiro Shibata 2006). Development and maintenance of the Sechín Alto polity, centered in the Casma Valley, likely left a near-vacuum in the neighboring Nepeña Valley to the north as the population of this smaller valley was drawn to Casma. If so, the Nepeña Valley was wide open to penetration by the Chavín migrants, and it is in this valley that we find Chavín outposts reaching furthest toward the coast.

Pallka, located in the upper Casma Valley, also was probably a Chavín colony, based on its mound form and abundant Chavín ceramics (S. Pozorski and T. Pozorski 1987: 88–89; Tello 1956: 32–48). Colonization was more difficult in the Casma Valley and hence limited to its upper reaches.

Possibly a third and small Chavín colony is Huaca Guavalito in the Caballo Muerto Complex of the Moche Valley where several Janabarriu ceramic types are associated with the small mound (T. Pozorski 1983:10–19).

Other sites that show significant Chavín influence and presence are the highland sites of Kuntur Wasi, Kotosh, and Huaricoto (Burger 1985; Burger and Salazar-Burger 1980, 1985; Izumi 1971; Izumi and Terada 1972; Kato 1993). At Kuntur Wasi, Chavín influence is reflected in ceramics and gold artifacts found in elite burials. Both Kotosh and Huaricoto had a long tradition, extending from the Late Pre-ceramic, of ritual hearth use. Perhaps this enabled the settlements to resist Chavín influence more effectively, limiting its presence to ceramic sherds from site refuse. Significantly, the Chavín polity does not seem to have adopted the ventilated hearth chamber and associated rituals into its amalgamation of architecture and belief systems even though several coastal sites apparently participated in variants of this Kotosh Religious Tradition (T. Pozorski and S. Pozorski 1996).

In contrast to Chavín colonies and sites exhibiting significant influence clearly traceable to Chavín de Huántar, there are numerous sites of local cultures only marginally impacted in the Chavín phenomenon. These include sites such as Cardal and Manchay Bajo in the Lurín Valley, where radiocarbon dates and ceramics document occupation that continued into the Early Horizon (Burger 1987, 2003; Burger and Salazar-Burger 1991). However, the local large, asymmetrical mound form continues to be used in accord with the architectural tenets of the Initial Period. In the lower Casma Valley, marked changes are evident between the Initial Period and the Early Horizon; however, these later Casma activities reflect primarily local developments (S. Pozorski and T. Pozorski 1987: 51–70). Small platform and room complexes with diverse orientations replaced mound-oriented sites with central axes of the Initial Period. This late settlement pattern is typical of Pampa Rosario, San Diego, and

the reoccupation of Sechín Alto site in the Casma Valley (S. Pozorski and T. Pozorski 1987: 51–79; T. Pozorski and S. Pozorski 2005) as well as Caylán and Huambacho Viejo in the Nepeña Valley and Macabalaca in the Huarmey Valley. Connections with Chavín are represented only by occasional use of Chavín decorative motifs on ceramics (e.g., stamped circles and dots) and shared artifact types, most notably ground slate points.

This reconstruction is tentative. New data from John Rick’s ongoing work at Chavín de Huántar and research by other scholars at other Early Horizon sites will surely lead to refinement and revision. Nevertheless, we think the data show that Chavín was a developing and expanding polity, albeit one whose strength and appeal seem especially strongly grounded in ritual and religious symbolism (Burger 1992; Rick 2005). Chavín’s origins lie earlier, in Late Pre-ceramic and Initial Period cultures that we think achieved state government, and perhaps even city life—at least during the Initial Period. However, we need not assume that Chavín dominated the entire Early Horizon Period. There were certainly numerous and varied local developments. In Chapter 35 of this volume, Richard Burger presents an alternative interpretation of Chavín.

CONCLUSION

This review has highlighted important issues confronting archaeologists investigating the Late Pre-ceramic to Early Horizon eras. The Huaura-Fortaleza area (“norte chico”) has attracted global attention as the new cradle of Andean civilization. Much remains to be described and defined, however, about complex, multi-component sites. Recognition of aceramic sites occupied during the Initial Period warns against dating that is not well supported by radiocarbon assays. Confirmed Initial Period polities north and south of the Huaura-Fortaleza area apparently developed along very different trajectories. Assuming that both areas drew ideas from the precocious Huaura-Fortaleza zone, why did they approach social complexity so differently? Achieving an understanding of the Chavín phenomenon is still hampered by many questions related to its definition, origins, and internal chronology.

We have taken a historical perspective in our review of the Late Pre-ceramic, Initial Period, and Early Horizon because interpretation of their associated cultural developments has changed so rapidly. Late Pre-ceramic inhabitants of the Andean area were initially characterized as coastal fisher-farmers yet recent work in the north-central coast (“norte chico”) reveals complex inland combined with coastal settlement that may have achieved an evolutionary status recognizable as the earliest Andean civilization. The Initial Period, first viewed as “marking time” between the Late Pre-ceramic and the subsequent Early Horizon, is now recognized as a dynamic time characterized by extremes in monumental construction and perhaps the first Andean state. The Chavín phenomenon, believed to characterize the entire Early Horizon, has been reinterpreted with respect to its chronology, its areal extent, the nature of its impact, and the ultimate origins of many of its components. By understanding the evolving sequence of interpretations readers can better assess arguments made by the archaeologists.

REFERENCES

- Alva, Walter, 1986, *Las Salinas de Chao*. Materialien zur Allgemeinen und Vergleichenden Archäologie 34. Verlag C. H. Beck, Munich.
- Bennett, Wendell C. and Junius B. Bird, 1960, *Andean Culture History*. The Natural History Press, Garden City.

- Bird, Junius B., 1948, Pre-ceramic cultures in Chicama and Viru. In *A Reappraisal of Peruvian Archaeology*, edited by Wendell C. Bennett, pp. 21–28. Memoirs of the Society for American Archaeology. *American Antiquity* 13 (4).
- Bonavia, Duccio, 1982, *Los Gavilanes*. Corporación Financiera de Desarrollo S.A. Cofide and Instituto Arqueológico Alemán, Lima.
- Bonnier, Elisabeth and Catherine Rozenberg, 1988, Del santuario al caserío: acerca de la neolitización en la cordillera de los Andes Centrales. *Boletín del Instituto Francés de Estudios Andinos* 17 (2): 23–40.
- Burger, Richard L., 1981, The radiocarbon evidence for the temporal priority of Chavín de Huántar. *American Antiquity* 46: 592–602.
- , 1985, Prehistoric stylistic change and cultural development at Huaricoto, Peru. *National Geographic Research* 1: 505–534.
- , 1987, The U-shaped pyramid complex, Cardal, Peru. *National Geographic Research* 3: 363–375.
- , 1992, *Chavín and the Origins of Andean Civilization*. Thames and Hudson, London.
- , 2003, El Niño, early Peruvian civilizations, and human agency: some thoughts from the Lurín Valley. In *El Niño in Peru: Biology and Culture over 10,000 Years*, edited by Jonathan Haas and Michael Dillon, pp. 90–107. Fieldiana, Botany, New Series, No. 43. Field Museum of Natural History, Chicago.
- and Ramiro Matos Mendieta, 2002, Atalla, a center on the periphery of the Chavin horizon. *Latin American Antiquity* 13 (2): 153–177.
- and Lucy Salazar-Burger, 1980, Ritual and religion at Huaricoto. *Archaeology* 36 (6): 26–32.
- and Lucy Salazar-Burger, 1985, The early ceremonial center of Huaricoto. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 111–138. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and Lucy Salazar-Burger, 1986, Early organizational diversity in the Peruvian highlands: Huaricoto and Kotosh. In *Andean Archaeology: Papers in Memory of Clifford Evans*, edited by Ramiro Matos, Solveig Turpin, and Herbert Eling, Jr., pp. 65–82. Institute of Archaeology, Monograph 27. UCLA, Los Angeles.
- and Lucy Salazar-Burger, 1991, The second season of investigations at the Initial Period center of Cardal, Peru. *Journal of Field Archaeology* 18: 275–296.
- and Lucy Salazar-Burger, 1998, A sacred effigy from Mina Perdida and the unseen ceremonies of the Peruvian Formative. *RES: Anthropology and Aesthetics* 33: 28–53.
- Bushnell, G. H. S., 1963, *Peru*. Thames and Hudson, London.
- Collier, Donald, 1962, Archaeological investigations in the Casma Valley, Peru. *Thirty-fourth International Congress of Americanists*, pp. 411–417.
- Donnan, Christopher B. (ed.), 1985, *Early Ceremonial Architecture in the Andes*. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Elera, Carlos, 1993, El complejo cultural Cupisnique: antecedentes y desarrollo de su ideología religiosa. In *El Mundo Ceremonial Andino*, edited by Luis Millones and Yoshio Onuki, pp. 229–257. Senri Ethnological Studies, No. 37. National Museum of Ethnology, Osaka.
- Engel, Frederic, 1957a, Early sites on the Peruvian coast. *Southwestern Journal of Anthropology* 13: 54–68.
- , 1957b, Sites et établissements sans céramique de la côte Péruvienne. *Journal de la Société des Americanistes*, New Series 46: 67–155.
- , 1967, El complejo El Paraíso en el valle de Chillón habitado hace 5,500 años: nuevos aspectos de la civilización de los agricultores del pajar. *Anales Científicos de la Universidad Agraria* 5: 241–280.
- Feldman, Robert, 1985, Pre-ceramic corporate architecture: evidence for the development of non-egalitarian social systems in Peru. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 71–92. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Fung, Rosa, 1988, The Late Pre-ceramic and Initial Period. In *Peruvian Prehistory*, edited by Richard Keatinge, pp. 67–96. Cambridge University Press, Cambridge.
- and Carlos Williams, 1970, Exploraciones y excavaciones en el valle de Casma. Paper presented at the 39th International Congress of Americanists, Lima.
- Grieder, Terence, 1975, A dated sequence of building and pottery at Las Haldas. *Ñawpa Pacha* 13:99–112.
- and Alberto Bueno, 1985, Ceremonial architecture at La Galgada. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 93–109. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , Alberto Bueno, C. Earle Smith, Jr., and Robert Malina, 1988, *La Galgada, Peru: A Pre-ceramic Culture in Transition*. University of Texas Press, Austin.
- Haas, Jonathan and Winifred Creamer, 2004, Cultural transformations in the Central Andean Late Archaic. In *Andean Archaeology*, edited by Helaine Silverman, pp. 35–50. Blackwell, Malden.

- _____. Winifred Creamer, and Alvaro Ruiz, 2004a, Dating the Late Archaic occupation in the Norte Chico region in Peru. *Nature* 432:1020–1023.
- _____. Winifred Creamer, and Alvaro Ruiz, 2004b, Power and the emergence of complex polities in the Peruvian Pre-ceramic. In *Foundations of Power in the Pre-Hispanic Andes*, edited by Kevin Vaughn, Dennis Ogburn, and Christina Conlee, pp. 37–52. Archaeological Papers of the American Anthropological Association, No. 14. American Anthropological Association, Arlington.
- Izumi, Seiichi, 1971, The development of the Formative culture in the Ceja de Montana: a viewpoint based on the materials from the Kotosh site. In *Dumbarton Oaks Conference on Chavín*, edited by Elizabeth P. Benson, pp. 49–72. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____. and Kazuo Terada, 1972, *Andes 4: Excavations at Kotosh, Peru 1963 and 1966*. University of Tokyo Press, Tokyo.
- Kato, Yasutake, 1993, Resultados de las excavaciones en Kuntur Wasi, Cajamarca. In *El Mundo Ceremonial Andino*, edited by Luis Millones and Yoshio Onuki, pp. 203–228. Senri Ethnological Studies, No. 37. National Museum of Ethnology, Osaka.
- Kauffmann, Federico, 1973, *Manual de Arqueología Peruana*. Ediciones Peisa, Lima.
- Kembel, Silvia Rodriguez, 2001, Architectural Sequence and Chronology at Chavín de Huántar, Peru. Ph.D. dissertation. Department of Anthropology, Stanford University.
- _____. and John W. Rick, 2004, Building authority at Chavín de Huántar: models of social organization and development in the Initial Period and Early Horizon. In *Andean Archaeology*, edited by Helaine Silverman, pp. 77–115. Blackwell Publishing, Malden, MA.
- Kroeber, Alfred, 1944, *Peruvian Archaeology in 1942*. Viking Fund Publications, No. 4. New York.
- Lanning, Edward P., 1967, *Peru Before the Incas*. Prentice-Hall, Englewood Cliffs.
- Larco Hoyle, Rafael, 1941, *Los Cupisniques*. Casa Editora La Crónica y Variedades, Lima.
- _____. 1946, A culture sequence for the north coast of Peru. In *Handbook of South American Indians, Vol. 2, The Andean Civilizations*, edited by Julian H. Steward, pp. 149–175. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____. 1948, *Cronología Arqueológica del Norte del Perú*. Sociedad Geográfica Americana, Editorial y Cultural, Buenos Aires.
- Lumbreras, Luis G., 1974, *The Peoples and Cultures of Ancient Peru*. Smithsonian Institution Press, Washington, D.C.
- Mason, J. Alden, 1969, *The Ancient Civilizations of Peru*. Penguin Books, Middlesex.
- Matsuzawa, Tsugio, 1978, The Formative site of Las Haldas, Peru: architecture, chronology, and economy. *American Antiquity* 43: 652–673.
- Moseley, Michael E., 1972, Subsistence and demography: an example of interaction from prehistoric Peru. *Southwestern Journal of Anthropology* 28: 25–49.
- _____. 1975, *The Maritime Foundations of Andean Civilization*. Cummings Publishing Co., Menlo Park.
- _____. and Luis Watanabe, 1974, The adobe sculpture of Huaca de los Reyes. *Archaeology* 27: 154–161.
- Patterson, Thomas C., 1971, Chavín: an interpretation of its spread and influence. In *Dumbarton Oaks Conference on Chavín*, edited by Elizabeth P. Benson, pp. 29–48. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____. 1985, The Huaca La Florida, Rimac Valley, Peru. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 59–69. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Pozorski, Shelia and Thomas Pozorski, 1979, An early subsistence exchange system in the Moche Valley, Peru. *Journal of Field Archaeology* 6: 413–432.
- _____. and Thomas Pozorski, 1986, Recent excavations at Pampa de las Llamas-Moxeke, a complex Initial Period site in Peru. *Journal of Field Archaeology* 13: 381–401.
- _____. and Thomas Pozorski, 1987, *Early Settlement and Subsistence in the Casma Valley, Peru*. University of Iowa Press, Iowa City.
- _____. and Thomas Pozorski, 1990, Reexamining the critical pre-ceramic/ceramic period transition: new data from coastal Peru. *American Anthropologist* 92 (2): 481–491.
- _____. and Thomas Pozorski, 1991, Storage, access control, and bureaucratic proliferation: understanding the Initial Period (1800–900 B.C.) economy at Pampa de las Llamas-Moxeke, Casma Valley, Peru. *Research in Economic Anthropology* 13: 341–371.
- _____. and Thomas Pozorski, 1992, Early civilization in the Casma Valley, Peru. *Antiquity* 66: 845–870.
- _____. and Thomas Pozorski, 1994a, Early Andean cities. *Scientific American* 270 (6): 66–72.

- _____ and Thomas Pozorski, 1994b, Multidimensional planning at Pampa de las Llamas-Moxeke. In *Meaningful Architecture*, edited by Martin Locock, pp. 45–65. Worldwide Archaeological Series 9, Avebury.
- _____ and Thomas Pozorski, 2002, The Sechin Alto Complex and its place within Casma Valley Initial Period development. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 21–51. Kluwer Academic/Plenum Publishers, New York.
- _____ and Thomas Pozorski, 2006, Las Haldas: an expanding Initial Period polity of coastal Peru. *Journal of Anthropological Research* 62: 27–52.
- Pozorski, Thomas, 1975, El complejo de Caballo Muerto: Los frisos de barro de la Huaca de los Reyes. *Revista del Museo Nacional* 41: 211–251.
- _____, 1980, The Early Horizon site of Huaca de los Reyes: societal implications. *American Antiquity* 45: 100–110.
- _____, 1982, Early social stratification and subsistence systems: the Caballo Muerto Complex. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 225–253. University of New Mexico Press, Santa Fe.
- _____, 1983, The Caballo Muerto Complex and its place in the Andean chronological sequence. *Annals of Carnegie Museum of Natural History* 52: 1–40.
- _____ and Shelia Pozorski, 1987, Chavín, the Early Horizon, and the Initial Period. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 36–46. Cambridge University Press, Cambridge.
- _____ and Shelia Pozorski, 1990, Huaynuná, a Late Cotton Pre-ceramic site on the north coast of Peru. *Journal of Field Archaeology* 17: 17–26.
- _____ and Shelia Pozorski, 1996, Ventilated hearth structures in the Casma Valley, Peru. *Latin American Antiquity* 7: 341–353.
- _____ and Shelia Pozorski, 1999, Temple, palais ou entrepôt? La centralisation du pouvoir dans le Pérou préhistorique. In *Ville et Pouvoir en Amérique: Les Formes de L'Autorité*, edited by Jerome Monnet, pp. 87–110. L'Harmattan, Paris.
- _____ and Shelia Pozorski, 2005, Architecture and chronology at the site of Sechín Alto, Casma Valley, Peru. *Journal of Field Archaeology* 30: 1–19.
- Quilter, Jeffrey, 1985, Architecture and chronology at El Paraíso, Peru. *Journal of Field Archaeology* 12: 279–297.
- Ravines, Rogger, 1982, *Panorama de la Arqueología Andina*. Instituto de Estudios Peruanos, Lima.
- _____ and William H. Isbell, 1975, Garagay: sitio ceremonial temprano en el valle de Lima. *Revista del Museo Nacional* 41: 253–275.
- Rick, John, 2005, The evolution of authority and power at Chavín de Huantar, Peru. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin Vaughn, Dennis Ogburn, and Christina Conlee, pp. 71–89. Archaeological Papers of the American Anthropological Association, 14. American Anthropological Association, Arlington.
- Roe, Peter, 1974, *A Further Exploration of the Rowe Chavin Seriation and Its Implications for North Central Coast Chronology*. Dumbarton Oaks Studies in Pre-Columbian Art and Archaeology, 13. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Rowe, John H., 1960, Cultural unity and diversification in Peruvian archaeology. In *Men and Cultures. Selected Papers of the Fifth International Congress of Anthropological and Ethnological Sciences*, pp. 627–631. Philadelphia.
- _____, 1962, *Chavin Art: An Inquiry Into Its Form and Meaning*. The Museum of Primitive Art, New York.
- _____, 1967, Form and meaning in Chavin art. In *Peruvian Archaeology: Selected Readings*, edited by John H. Rowe and Dorothy Menzel, pp. 72–103. Peek Publications, Palo Alto.
- _____ and Dorothy Menzel (eds.), 1967, *Peruvian Archaeology: Selected Readings*. Peek Publications, Palo Alto.
- Samaniego, Lorenzo, Enrique Vergara, and Henning Bischof, 1985, New evidence on Cerro Sechín, Casma Valley, Peru. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 165–190. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Shady, Ruth, 1999, *La Ciudad Sagrada de Caral-Supe*. Museo de Arqueología y Antropología, Universidad Nacional Mayor de San Marcos, Lima.
- _____, 2001, Caral-Supe y la costa norcentral del Perú: la cuna de la civilización y la formación del estado prístino. In *Historia de la Cultura Peruana*, Vol. 1, pp. 45–87. Fondo Editorial del Congreso del Perú, Lima.

- _____. 2006, America's first city? The case of Late Archaic Caral. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 28–66. Springer, New York.
- _____. Jonathan Haas, and Winifred Creamer, 2001, Dating Caral, a pre-ceramic site in the Supe Valley on the central coast of Peru. *Science* 292: 723–726.
- Shibata, Koichiro, 2006, Cronología del Período Formativo en el valle bajo de Nepeña y la problemática Chavín. Paper presented at the roundtable discussion "Searching for patterns in the diversity of the Central Andean Formative," March 3–4, 2006, Stanford University.
- Shimada, Izumi, 1982, Horizontal archipelago and coast-highland interaction in north Peru: archaeological models. In *El Hombre y Su Ambiente en los Andes Centrales*, edited by Luis Millones and Hiroyasu Tomoeda, pp. 137–210. Senri Ethnological Studies, No. 10. National Museum of Ethnology, Osaka.
- Strong, William D. and Clifford Evans, 1952, *Cultural Stratigraphy in the Viru Valley, Northern Peru: The Formative and Florescent Epochs*. Columbia University Press, New York.
- Tellenbach, Michael, 1986, Las excavaciones en el asentamiento formativo de Montegrande, valle de Jequetepeque en el norte del Perú. *Materialien zur Allgemeinen und Vergleichenden Archäologie*, 39. Verlag C. H. Beck, Munich.
- Tello, Julio C., 1930, Andean civilization: some problems of Peruvian archaeology. *Proceedings of the XXIII International Congress of Americanists*, pp. 259–290.
- _____. 1942, Origen y desarrollo de las civilizaciones prehistóricas. *Actas del XXVII Congreso de Americanistas* 1: 589–720.
- _____. 1943, Discovery of the Chavín culture in Peru. *American Antiquity* 9: 135–160.
- _____. 1956, *Arqueología del Valle de Casma, Culturas: Chavín, Santa o Huaylas Yunga y Sub-Chimú*, Vol. 1. Universidad Nacional Mayor de San Marcos, Lima.
- _____. 1960, *Chavin: Cultura Matriz de la Civilización Andina*. Publicación Antropológica del Archivo "Julio C. Tello" de la Universidad Nacional Mayor de San Marcos, Vol. 2, Lima.
- Thompson, Donald, 1962, The problem of dating certain stone-faced stepped pyramids on the north coast of Peru. *Southwestern Journal of Anthropology* 18: 291–301.
- Wendt, W., 1964, Die Prakeramishche Siedlung am Rio Seco, Peru. *Baessler-Archiv*, n.f. 11 (2): 225–275.
- Wiley, Gordon R., 1951, The Chavin problem, a review and critique. *Southwestern Journal of Anthropology* 7: 103–144.
- _____. 1953, *Prehistoric Settlement Patterns in the Viru Valley, Peru*. Bulletin 155. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____. 1971, *An Introduction to American Archaeology, Volume 2, South America*. Prentice-Hall, Englewood Cliffs, NJ.
- Williams, Carlos, 1972, La difusión de los pozos ceremoniales en la costa peruana. *Apuntes* 2: 1–9. Lima.
- _____. 1979, Arquitectura y urbanismo en el antiguo Perú. In *Historia del Perú* 8: 389–585. Editorial Juan Mejía Baca, Lima.
- _____. 1985, Monumental architecture of the central coast of Peru. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 227–240. Dumbarton Oaks Research Library and Collection, Washington, D. C.
- Zechenter, E., 1988, Subsistence Strategies in the Supe Valley of the Peruvian Central Coast during the Complex Pre-ceramic and Initial Periods. Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles.
- Zoubek, Thomas, 1998, An unusual stone sculpture from Huaca El Gallo/La Gallina, Virú Valley, Peru. *Journal of Field Archaeology* 25: 345–355.

Andean Urbanism

KRZYSZTOF MAKOWSKI

INTRODUCTION

The nature of pre-Hispanic urbanism is one of the most controversial issues in the archaeology of the Central Andes. The contrasting positions range from the nature of the concept itself to the chronology of the process, the role of presumably urban complexes, and the characteristics of the social and economic context. The discrepancies and contradictions were heightened in the last decade when the astonishing monumental architecture of the Late Pre-ceramic Period (2700–1800/1500 BC) on Peru's north-central coast ("norte chico") was reinterpreted by Ruth Shady (2006; Shady and Leyva 2003; Shady et al. 2001), on the basis of her fieldwork at Caral in the Supe Valley, as evidence of a process of nucleation (Figure 32.1). Shady explains the architectural complexity of Caral and the diffusion along the norte chico of ceremonial architecture with pyramids, raised atriums, ventilated hearths and sunken circular courts as an effect of the presumed rise of the inchoate state, its capital city, and its secondary and tertiary administrative centers. Shady (Shady and Leyva 2003) adapts Childe's (1974 *inter alia*) theory of the urban revolution to approach the issue from a perspective that is eclectic, pragmatic, comparative, and axiomatic at the same time. Additional data have been generated by the multi-valley project of Jonathan Haas and collaborators. Haas has some reservations as regards the centralized characteristics of the norte chico's political institutions while recognizing the remarkable complexity of the norte chico phenomenon (Haas and Creamer 2004; Haas et al. 2004). Many questions come to mind if the scenario of Late Pre-ceramic urbanism is assumed as possible:

- What kind of urbanism could have developed in a technological context prior to the domestication of camelids, with only an incipient agriculture (Dillehay et al. 2004) and devoid of land or maritime transportation? [Note 1]
- Why does the archaic tradition of monumental ceremonial architecture vanish at the beginning of the Early Horizon save in some highland centers, such as Chavín and Kunturwasi (Burger 1992; Onuki 1995)?

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

- Why does the presumably urban settlement pattern of the Late Pre-ceramic Period have few similarities with the urbanism known later on the north coast when several regional states—e.g., Moche and Wari—fought with each other for regional mastery?

a



b



Figure 32.1. Caral, in the Supe Valley. a. Panoramic view (photographer: George Steinmetz); b. Circular plaza (photographer: Sonia López T.);

c



Figure 32.1. (continued) c. Residential zone (photographer: not printed on image). (photos from the uncopied work: *Caral, Supe, Perú. La Ciudad Más Antigua de América. Calendario 2004*)

THEORETICAL APPROACHES AND INTERPRETATIONS

The debate regarding Andean urbanism originates in three proposals that were posited by Collier (1955), Rowe (1963), and Lumbreras (1974, 1986), and which in turn followed respectively from comparative, pragmatic and axiomatic definitions of the urban phenomenon.

Comparative Definitions

For Collier (1955), the cultural development of the Peruvian coast followed the evolutionary line that Adams and Wittfogel (in Steward et al. 1955) had identified in other pristine centers of civilization. Between the end of the Formative Epoch and the Regional Developmental (Florescence) Epoch irrigation systems were introduced in the lower part of the coastal valleys and the development of other technologies (animal husbandry, metallurgy) enabled a marked increase in population. This gave rise to armed conflict as well as the emergence of a warrior elite that was soon involved in a latent conflict with the old priestly elite. The conditions that enabled the theocratic chiefdoms of the Formative Epoch to turn into secular, militaristic and expansionist secular states—e.g., Wari—thus appeared. This hypothetical sequence of stages was supported by the development of settlements with monumental public architecture, as follows: 1) Formative *ceremonial centers*; 2) capitals of regional states: *large agglutinated towns around enormous pyramid-temples* (Regional Developments); 3) *planned urban settlements*, whose rise was related to the militaristic stage (Wari).

Collier's position was assumed by Schaedel (1966, 1978, 1980), who was the first to attempt a systematic comparison using the criteria developed by Adams (1966) when

he compared the results of surveys undertaken in the areas of Uruk (Mesopotamia) and Teotihuacan (Mexico). The influential studies by Adams (1966, 1988) and Schaedel (op cit) convinced generations of scholars that the process of social and political evolution related to the rise of the city and the state in the Uruk area was repeated in other cultural areas, without any significant variation (D'Altroy 2001).

In the Andes, the comparative approach was later adopted by, among others, Shimada (1994: Moche urbanism) and Isbell (1988; Isbell and McEwan 1991 *inter alia*: Huari/Wari urbanism [Note 2]). Isbell and his team specifically applied the methodology developed by Adams, Wright, and Johnson in their surveys in Mesopotamia (e.g., Wright 1969; Johnson 1973; Wright and Johnson 1975). Assuming that the urban phenomenon was conditioned by the consolidation of the state's administrative structures, its presence or absence could be inferred from the hierarchical and spatial relations between settlements (see, e.g., Isbell and Schreiber 1978). According to the guidelines laid down by this model, size and the formal differentiation of architectural groups, when compared with the spatial distribution of sites, enabled one to distinguish capitals, regional and provincial centers, districts, and so on. For the Andeanist scholars who follow the comparative approach, the urban phenomenon was a late development that arose between the seventh and ninth centuries AD, and was directly related to the transformation of chiefdoms into expansive states.

Pragmatic Definitions

In his definition of Andean urbanism Rowe (1963), unlike Schaedel, did not pay much attention to formal or demographic criteria or to spatial organization (e.g., monumentality, layout). For Rowe, nuclear distribution by itself is not diagnostic of urban systems because achoritic (large settlements distant from one another) and synchoritic (nuclear) organization types are known in Classical Antiquity in mostly rural areas. His definition of a city is pragmatic and functional in nature: a city is a permanent dwelling site of managers, merchants, craftsmen, and the military. The presence of a large permanent population enables a distinction between city and ceremonial center to be drawn, whereas what distinguishes a city from a town is the type of occupation and not its size. In this position, which may be called pragmatic, settlements lacking a formally differentiated public core and that extend over an area of less than 4 ha are of a village type. The evidence proposed to establish whether a settlement was a city, a ceremonial center or an administrative center—i.e., the occupations of the resident population—cannot, of course, be obtained without systematic, long-term area excavations.

The followers of the pragmatic approach therefore often use the three above-mentioned terms as synonyms or composite terms, e.g., sacred city, ceremonial-administrative center. Following Rowe's position and his chronological proposals, Burger (1992: 162–181) interpreted the growth of the area around the temple of Chavín de Huántar (see Figures 35.1, 35.3, 35.4 in this volume) in the fourth-third centuries BC as a manifestation of an incipient urbanism (Figure 32.2; see Chapter 35 in this volume).

Axiomatic Definitions

Some scholars have tried to push back the date that marks the beginning of Andean urbanism even more—to the second or even the third millennium BC (Pozorski and Pozorski 1987; Shady 2003; Haas et al. 2004). Their proposals are based on the relative frequency with which traits considered diagnostic of administrative and/or urban centers appear on

a



b

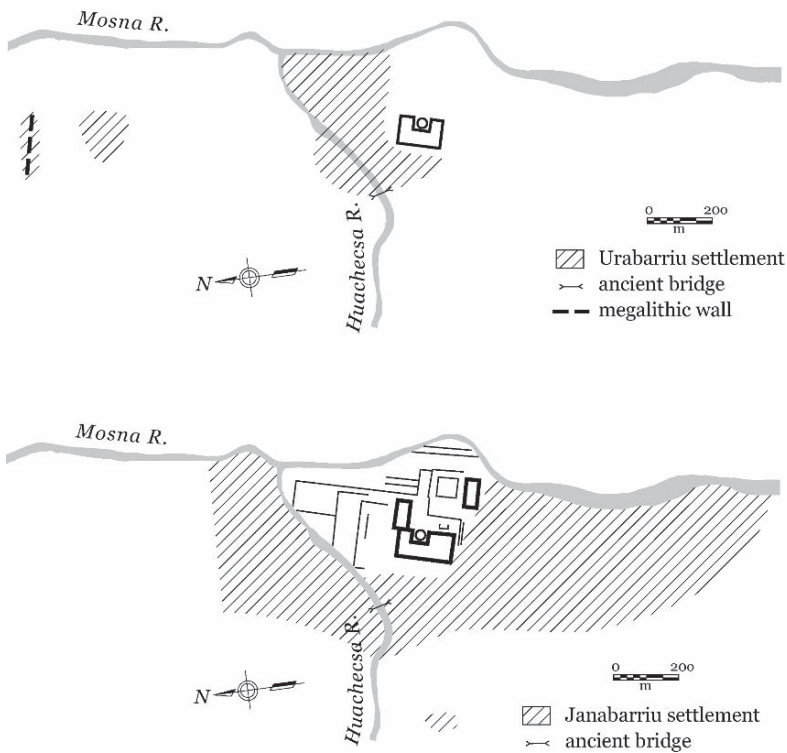


Figure 32.2. Chavín de Huántar. a. Elevated view of the temple (photo: Krzysztof Makowski; compare to plan of site published in Burger 1992: fig. 120); b. Dramatic urban growth at Chavín de Huántar. (Redrawn by Steven J. Holland from Burger 1992: figs. 156, 167)

the coast of Peru since the Late Pre-ceramic Period and throughout the Initial Period. These traits are: 1) an ordered or planned spatial design; 2) the formal complexity and functional differentiation of monumental architecture; 3) the presence of dwelling areas and areas where food was prepared in the vicinity of the monumental architecture; and 4) a total area that often exceeds 10 ha, and which may even reach up to 220 ha (for example, Pampa de las Llamas-Moxeke [Pozorski and Pozorski 1991: 342]; Figure 31.7 in this volume).

The proponents of the axiomatic definition assume that the presence of large complexes of formally diversified monumental architecture, surrounded by dwelling, storage and manufacturing areas, necessarily entails an advanced level of socio-economic complexity known as the urban level (Southall 1998; Manzanilla 1997). For them, the despotic state (along with a developed coercive apparatus) and urbanism are phenomena that are both universal as well as inseparable from the origins of civilization. This position was introduced into Andean archaeology with the interpretation of Collier's (1955) model made by Lumbreras (1974, 1986) and his associate Canziani (1987), following the guidelines laid down by Childe. Lumbreras (1975) initially related the rise of the urban phenomenon in the Central Andes with the causes that gave rise to the expansive Wari state in the Ayacucho region, between the fifth and the sixth centuries AD. That date would now be pushed back because of the new data generated since he wrote. The ideas of Lumbreras and Canziani have exerted a strong influence on the perception Peruvian archaeologists have of the urban phenomenon, much like the impact the ideas of Collier and Schaedel had on U.S. scholars.

According to Lumbreras' historical materialism, the neolithic revolution inevitably lays the bases for the urban revolution, so long as a generalized sedentary mode of life is supported by efficient systems of agriculture and animal husbandry that are capable of yielding a surplus that can be stored. According to this proposal, the increase in the size of the surplus provides the required maintenance for an ever-larger number of specialized manufacturers and leaders. Under these conditions, the rise of social classes with rival interests is imminent, and with them comes the state and its coercive apparatus. The dominant class lives in the city, which also becomes the locus of all the powers of the state. In this perspective, urban development is a material reflection of the development of social classes.

Unlike other scholars of a Marxist bent (e.g., Southall 1998), Lumbreras and his followers have not engaged in critical discussion of the nature of the relations between town and country, nor of any other aspect of Andean economic organization, implicitly assuming that these are all comparable with the relations that characterize the capitalist mode of production [Note 3].

Functional Definitions

Unlike the three previous approaches, the functional perspective is not inspired by the results of surveys and surface explorations. On the contrary, its proposals are based on systematic excavations undertaken in presumably urban groups, and are often supported by post-processual archaeological theory, particularly by the symbolic-structural approach. Discussions regarding the unique characteristics of urbanism in the Far East and in the New World (Geertz 1980; Wheatley 1971) have likewise exerted a strong influence. The functional perspective entails a challenge: the indigenous cultural context has to be reconstructed from the data recovered through systematic excavations, and through a critical reading of the historical sources from the early Colonial Period. Rowe (1967) outlined this difficult route in his pioneering article on the specific characteristics of Cuzco as the capital of Tahuantinsuyo.

NEW PERSPECTIVES ON URBANISM FROM THE CENTRAL ANDES AND THE PARTICULARITIES OF ANDEAN URBANISM

Excavations undertaken in the Central Andes during the last three decades have provided new perspectives on Andean urbanism. It turns out that the permanent population of several supposedly urban centers was so limited that the area used specifically for habitation must not have comprised more than 10% of the total area. This surprising characteristic was found both in planned complexes and in the hypothetical provincial capitals of empires (Azángaro: Anders 1991; Huánuco Pampa: Morris 1985), as well as in sites with a disordered growth (e.g., Cahuachi: Silverman 1993; Wari and Conchopata: Isbell 2001, Isbell and Cook 2002). Most of the monumental structures had ceremonial and even mortuary functions besides an administrative role. Warehouses and workshops for the manufacture of cult paraphernalia are found in the minor structures. The label *administrative-religious center* or, in some cases, *palace complex* (see the recent discussions in Evans and Pillsbury 2004), is therefore more appropriate than *city* when describing the function performed by the architectural groups that have been excavated. It is likewise clear that when comparing the economy, social organization, *weltanschauung* (worldview), and the way power was wielded in different societies, a similarity in architectural forms does not necessarily imply a functional relationship. Despite the apparent similarity in their checkerboard layout (Figure 32.3), the planned Wari settlements of the Middle Horizon turned out to be quite different—as regards the use and organization of urban space—from the Greek colonies or the Hellenistic-Roman cities that had a layout inspired by the ideas described by Hippodames of Miletus and Vitruvius. The followers of the functional approach are therefore cautious when

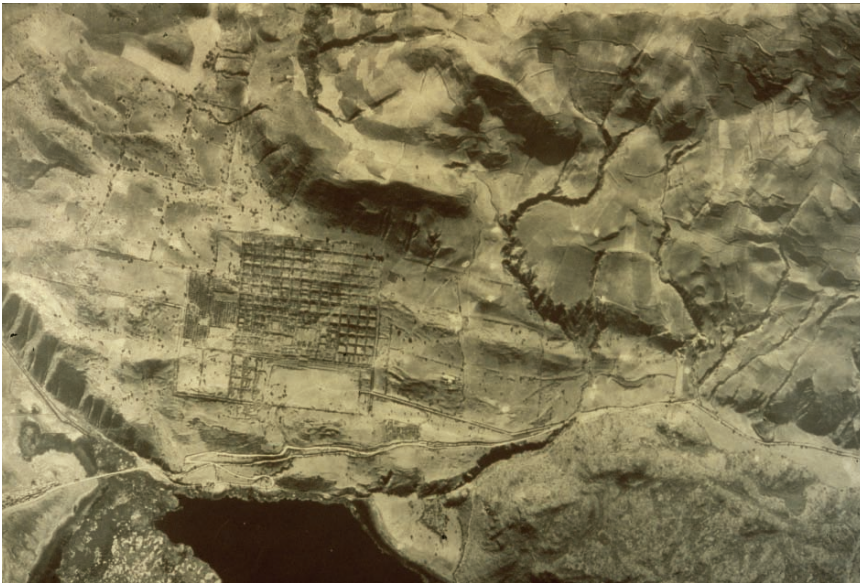


Figure 32.3. Pikillakta exemplifies the “checkerboard” layout of Wari planned settlements. (photo: Servicio Aerofotográfico Nacional, Lima)

it comes to using the concepts of *city* and *urbanism*, which are inextricably connected with the historical discussion of the origins and development of Western culture.

Following the observations and critiques made by Rowe (1967), Murra (1972), Morris (1985), Silverman (1993), and Anders (1991), among others, Makowski (1996, 2002) recently suggested that if one takes the main characteristics of western urbanism as a benchmark, then the Andean system was essentially anti-urban in nature (and see Kolata 1997). In the Andes, powerful religious ideologies and profuse ceremonial calendars regulated the annual displacement of population groups, alongside the flow of the required services and goods—e.g., the description of the Inca system given by the Spanish chroniclers (Rowe 1967; Morris 1985; von Hagen and Morris 1997). Monumental architecture, established in combination with roads and irrigation canals, and grouped in ceremonial centers of varying rank, channeled the flow of labor and goods, turned the secular landscape into a sacred cosmogram, and bestowed the nature of a religious obligation upon tribute, both in labor and in produce. The preparations for war and commercial exchanges likewise formed part of this ceremonial framework. Since the Pre-ceramic Period, most of the population in all periods lived in scattered settlements located beyond the limits of the land under cultivation and their average area did not surpass 4 ha except in the case of regional capitals, which were possibly the dwelling places of the warrior elite. The scant agglomerations with an area of more than 200 ha—e.g., the Huacas del Sol and de la Luna, Huari, Pampa Grande, Cajamarquilla, Chan Chan, Huánuco Pampa—all arose due to a *compulsory urbanism* fostered by the state (see Morris 1972). All seem to have fulfilled the role of capital and administrative and ceremonial centers at the same time, and none of them survived the political circumstances that gave rise to their establishment.

From the standpoint of a history of political institutions, this unique Andean urbanism can be defined first of all as a materialization of diffuse power (Mann 1986), and therefore as both the means for and the result of the transmission of religious ideologies (Burger 1992; Kolata 1997, 2003; Swenson 2003), as well as a powerful device for a social memory inscribed in the landscape (Silverman 2002). The elites in the complex chiefdoms and the emerging inchoate states used these ancestral devices and resources to weave networks of power of an essentially hegemonic nature (D'Altroy 2002). The incipient development of maritime and land transportation imposed severe constraints on the territorial organization of power until the late pre-Hispanic period except in the southern areas, where it is possible that camelid caravans were organized for trade. Tools of heterarchical analyses recently used in research (e.g., Dillehay 2001) are extremely useful for understanding the characteristics and functions of these centers.

In the Andes, monumental agglomerations have the functional characteristics of palaces (Isbell 2001, 2002, 2004; Eeckhout 1999; Mogrovejo and Segura 2001), temples and ceremonial centers. Ceremonial architecture and elite residences were combined in the administrative centers of complex chiefdoms or emerging states. Makowski's hypothesis tends to explain the following particular characteristics of this *sui generis* Andean urbanism:

- The *instability of the settlement systems*, as shown by: the absence of stratified urban mounds (equivalent to Mesopotamian tells), long occupational discontinuities observable in the stratigraphy of settlements with multiple occupations, and drastic changes in the spatial distribution of sites that took place every four hundred to six hundred years.
- The *predominance of public architecture* (on average over 60% of the total area of a site), which incorporates sacred spaces and marginalizes domestic areas in all complexes considered urban that thus far have been documented.

- The *recurrence of some forms of ceremonial architecture*—e.g., sunken patios, walled enclosures, stepped platforms, ramped pyramids—in sites classified as urban or administrative centers.
- The *surprisingly early antecedents* in the Late Pre-ceramic Period of several forms of ceremonial architecture, and particularly of the Andean settlement pattern characterized above.

Makowski's proposal is also based on the critiques that have been recently raised against the traditional reconstruction of the process of urbanism in Mesopotamia, as well as against the presumed universal nature of the mechanisms observed in some parts of the Euphrates and Tigris river basins (Childe 1974; Adams 1966, 1981 *inter alia*). It is to the Mesopotamian case study that we now turn for comparison with the Central Andes.

Mesopotamian Comparisons

It has now been established almost beyond question that during the Late Chalcolithic and Early Bronze Periods (fourth-third millenniums BC), the average size and the spatial organization of the settlements were directly related to the quality of the soil, as well as the characteristics of water resources. Ramazzotti (2003) distinguishes five regions in the middle and lower basins of both rivers [Note 4]. Each region has different characteristics from the others in terms of the spatial organization of the settlements. The typical hierarchical organization—an outcome of a sustained process of nucleation, with the population concentrated in several very large (over 200 ha) and large (over 40 ha) settlements surrounded by mid-sized (over 5 ha) and small villages, located on the banks of watercourses (including the canal network)—characterizes only the countryside of Uruk-Warka and that of Nippur. In the latter case, however, small settlements (under 1 ha) predominated in the landscape [Note 5]. Some of the five regions were periodically affected by droughts, others (in the lower basin) by the increase in salinity caused by intensive irrigation. Except for the Diyala Valley, none of the zones therefore had stable conditions, and the sequences of changes in the settlement patterns between the fourth and third millenniums BC are markedly different [Note 6]. No data as yet available for the upper Euphrates and Tigris basins have been analyzed using the same methodology. Even so, evidence recovered by systematic excavations undertaken in the last 25 years suggests that this development also has particular characteristics and cannot be compared with the processes observed in the Uruk basin (Uruk countryside) despite the unquestionable interaction that took place between both zones, and which was particularly strong in the Uruk Period.

A rapid transformation of the settlement system took place in the upper Euphrates and Tigris rivers in the latter period thanks to the establishment of Uruk colonies such as Habuba Kabira, and to the growth of local centers whose material culture also was strongly influenced by the Uruk culture, such as Tell Brak (Akkermans and Schwartz 2003: 181–210). The Uruk colonies were abandoned in the Djemdet Nasr Period, so now the landscape was characterized by middle-sized settlements of an urban type that lacked monumental architecture and were of an undeniable local nature (Ninevite 5). Almost ten centuries separate the two periods of “urban expansion”—that of Uruk and the urban development that took place at the end of the third millennium, just before the Akkadian conquest (Akkermans and Schwartz 2003: 233–287).

A comparison of these six areas in Mesopotamia and the Nile Valley strengthens the impression that several types of urbanism and various sequences of early nucleation processes are perceivable in the Ancient Near East, all of which were to a great

extent conditioned by environmental conditions (Hole 1994; Ramazzotti 2003). Trigger (1985, 2003) correctly suggests that the history of urbanism in Egypt is completely different from that of Mesopotamia. In Egypt, urbanism was of a coercive nature and was a result of the rise and development of the territorial state in the Gerzean Period (Nagada III). The “urban” centers were capitals, administrative and ceremonial centers, and strong points all at the same time. A few exceptionally extensive settlements with planned orthogonal layout are also known (e.g., Saqqara), which were built for the workers and officials in charge of maintaining a royal necropolis. Most of the population lived in small settlements of a rural nature, and even the major walled urban centers like Hierakonpolis had a very restricted area—usually less than 20 ha (Wilkinson 2001: 323–343).

The place monumental ceremonial architecture had in contexts considered urban is, in both cases, different. In Egypt, residential areas of a relatively small size—in comparison with the size of public ceremonial spaces—were raised to house the builders and palace officials of the temples or the necropolis. In contrast, in Mesopotamia large monumental architecture appeared late in the sequence (Late Uruk), both in the temples and even more so in the palaces, after several centuries of sustained growth of the settlements, and urban space was mostly taken up by dense residential architecture.

Recent studies in Mesopotamia also require a reassessment of Childe’s classical concept of “urban revolution.” The development of the urban centers belonging to the Uruk culture (ca. 4000–3100 BC) precedes the generalized use of writing in the basin by more than a thousand years. In urban settlements of the upper valley only evidence of accounting systems has been found (tokens, proto-tablets). It is likewise clear that both the “first as well as the second urban revolution” (Ramazzotti 2003) preceded the increase in social stratification and the rise of private property in the late third millennium BC by several centuries (Trigger 2003). Scholars likewise stress the relatively egalitarian nature (Yoffee 1993, 1995) of the first societies considered “urban,” as well as the role that religion—with some “shamanic” overtones—had in their political life (Rothman 2004). The use of criteria and concepts coined to describe the political and economic life of the states in the mid-third millennium BC to describe and understand the processes that led to the rise of complex societies in the fourth millennium BC has been questioned. Possible misuse of concepts such as city-state and world-system (e.g., Algaze 1993) was particularly singled out for critique. These proposals include, among other points, that a distinction has to be drawn between centers and cities, and that prehistoric developments (Uruk) should be defined as essentially proto-urban (Rothman 2002; Butterlin 2003).

In this context the proposal made by Trigger (1985, 2003) has gained more support. For Trigger, Egypt and Mesopotamia must be considered as two completely different and opposed processes in their characteristics and effects: the sudden rise of several complex chiefdoms and then of a regional state that fostered the establishment of urban centers (Egypt), as opposed to the slow development of a proto-urban system that preceded the rise of pre-Akkadian peer-polities and historical city-states. Wilson (1997) and Kolata (1997) recently tried to use this proposal to provide a better definition of the relation between urbanism and the state in the Andes. Both scholars agree that the archaeological record holds no data that could be interpreted as evidence of the development of several competing city-states in, respectively, the Santa Valley and the Titicaca basin. Their arguments suggest that the specific manifestations of Andean urbanism have a closer affinity with the Nile Valley than with the Mesopotamian process of urban development.

Public Architecture, Urbanism, Sacred Geography, and the Materialization of Ideology in the Andes

Most scholars relate the origins of Andean urbanism to the particular type of extensive settlement that corresponds to the definition of an inhabited ceremonial center. This type of settlement with public monumental architecture and a small associated residential sector appeared simultaneously on the north-central/north coast and in the northern highlands of Peru in the Late Pre-ceramic Period (ca. 2700-1800/1500 BC). The isolated antecedents in the preceding period (Middle Pre-ceramic: see Dillehay et al. 2004) and the direct chronological relationship with the end of the process of domestication of most cultigens, suggest that the precocious development of public architecture was part and parcel of the same process of development of sedentary societies in the Central Andes, both agricultural (Burger 1992) and pastoral ones (Bonnier 1997).

It must be noted that the varied forms of ceremonial architecture—platforms, pyramids, roofed and roofless enclosures, circular plazas with or without a staircase—which are combined at Caral and give it its “urban” look (Figure 32.1), also appear isolated or combined in the most varied ways both in the Supe Valley and in other neighboring valleys. There is at least one settlement of this type in each segment of the valley. On the other hand, the number of monumental structures in each settlement varies between one and about thirty-two monumental structures (Shady and Leyva 2003: 76–91, figs. 13–30), and they seem to bear some relation with factors of a heterarchic nature, such as the positioning of the ceremonial center in relation to the inter-valley roads and the cultivated areas, or the catchment area employed in foraging by one or several human groups. The large variety of architectural forms is also striking—stepped pyramids, sunken circular plazas, amphitheater-like plazas, rectangular platforms, and buildings with rows of possible rectangular warehouses. Some of these forms recur only in certain settlements. The areas with a definite domestic occupation are very small in comparison to the public areas of ceremonial use, even in the case of Caral. In this context it is highly likely that the size and complexity of the settlements are due to their growth over centuries, during which some structures were abandoned, others were adapted, some were built over the ones that were no longer in use, and still others were erected in empty areas. Rates of simultaneous use of the built areas at Caral during its minimally thousand-year-long history have yet to be established.

The introduction of pottery, ca. 1900/1800 BC, merely marks the beginning of the Initial or Formative Period in the relative chronology used by Andeanists. Except for an intensification of agriculture there were no major cultural changes in the pattern described above, not even in architectural design, and most of the traditions (e.g., Kotosh-Mito, U-shaped temples: see Chapter 31 in this volume) continued their development until ca. 800 BC.

From a formal perspective, all general site-types with public architecture known for later periods were already present in the Late Pre-ceramic and Initial Periods: 1) isolated ceremonial structures (Las Haldas, La Galgada, Mina Perdida) (Figure 32.4); 2) complexes of ceremonial structures (Aspero, Salinas de Chao, Caral, Taukachi-Konkan, Kotosh) (Figure 32.1); 3) planned complexes structured around plazas and axes of communication (El Paraíso, Pampa de las Llamas-Moxeke) (Figure 31.7 in this volume; Figure 32.5). Other features are also comparable with those found in the major complexes of later periods: a) the custom of ritually burying ceremonial structures and then building new, similar ones over the former complex (e.g., Cardal: Burger and Salzar-Burger 1991); b) a surface area of up to 220 ha (e.g., Pampa de las Llamas-Moxeke); c) impressive volumes built with adobe bricks and stone (e.g., Sechín Alto, 300 × 250 × 44 m); d) the figurative decoration of the



Figure 32.4. Las Haldas, isolated in the desert south of the Casma Valley. Note the sunken circular plaza in the middle of one of the plazas. (photo: Helaine Silverman)



Figure 32.5. El Paraiso, Chillón Valley, central coast of Peru. (photo: Helaine Silverman)

façades (e.g., Garagay, Cerro Sechín) (Figure 32.6); and e) the formal, and potentially functional, variety of the architecture (e.g., Pampa de las Llamas-Moxeke, Huaca de los Reyes).

Information about the extent of domestic areas as well as storage are biased because remains appear as field research advances and knowledge depends both on the state of preservation and on the amount of the fieldwork completed so far. However, some habitation areas have been documented as a component of sites belonging to each of the three general

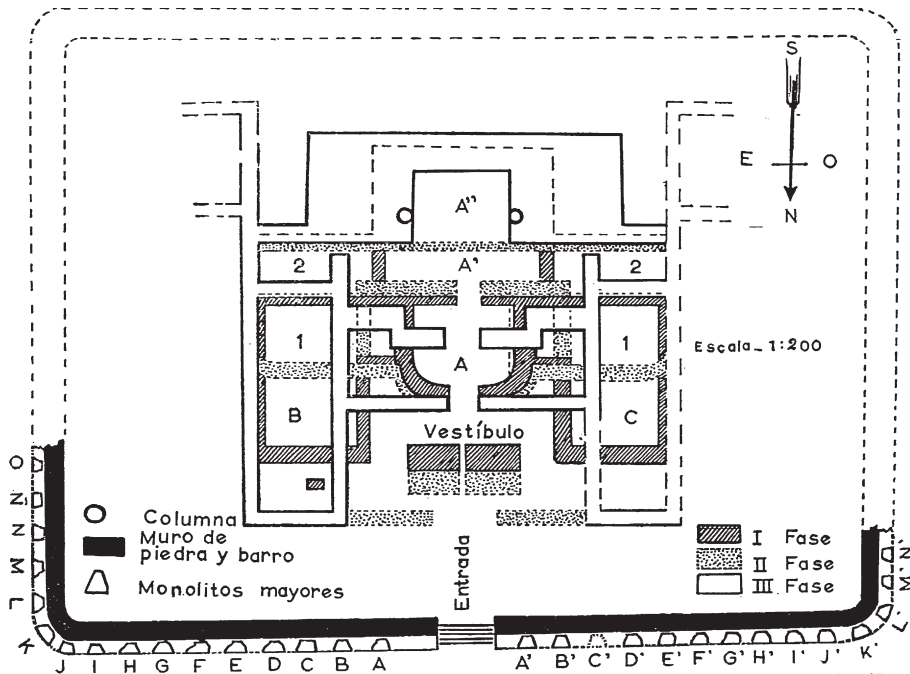


Figure 32.6. Cerro Sechín, Casma Valley. a. Tello's (1956: fig. 108) plan of the site showing location of the carved monoliths conforming its façade. b. Carved monoliths in the façade depicting victims of dismemberment (photo: Helaine Silverman)

site-types listed above, e.g., at Caral (Shady 2006), Cardal (Burger 1992), Monte Grande (Tellenbach 1986), and Pampa de las Llamas-Moxeke (Pozorski and Pozorski 1987).

All of the evidence that supports an early date for the advent of urbanism *sensu lato* in the Andes is countered by the socio-economic context. The mortuary customs suggest relatively egalitarian and peaceful societies.

The age of the great ceremonial centers and their construction came to an abrupt end in the Early Horizon (Middle Formative, ca. 800-200 BC), when there is an increase in the exchange of raw materials (obsidian, *Spondylus* sp.) and cult paraphernalia (pottery, textiles); the rise of elites (e.g., the tombs of Kuntur Wasi, Onuki 1995); an increase in warfare (as evidenced by the discovery of arms and defensive structures: see Daggett 1987; Topic and Topic 1997). Some attempts have been made to correlate these trends in socio-economic development with the gradual expansion of the area of influence of Chavín de Huántar, as well as with the emergence of sites with an orthogonal plan (e.g., San Diego, see Pozorski and Pozorski 1987: fig. 28)—manifestations of an incipient urbanism. Even so, it has not yet been proven that the above-mentioned changes were brought about by the increase in the size of the permanent population, and were not instead due to specific ceremonial functions—for instance, pilgrim encampments, enclosures for ritual banquets, and workshops for the manufacture of cult paraphernalia can all leave similar remains.

The major northern traditions of ceremonial architecture were not a direct precedent of the ceremonial and urban centers that followed in the Early Intermediate Period (ca. 200 BC-AD 600) and Middle Horizon (ca. AD 600-900). In the north, the decline of the Chavín and Cupisnique cultures represents a break in cultural continuity that was particularly strong in architectural design and building techniques. Between the second century BC and the second century AD the predominant settlement pattern was dispersed; the site of Cerro Arena (Salinar culture: see Brennan 1980) is an exceptional case of a large, exclusively habitational settlement with elite precincts. And structures of a possible defensive nature were more common than ceremonial ones. Defensive structures were usually of small size (there are exceptions, e.g., Chankillo, see Ghezzi 2004) and combined possible ceremonial roles with multiple defensive enclosures (Topic and Topic 1997).

The regional traditions of monumental architecture appeared in the south two thousand years later than in the north, in the Early Horizon (Silverman 1996), and lasted through the Early Intermediate Period. The earliest manifestations of monumental architecture in the south are in the Titicaca altiplano (Chiripa and Pucara: see Stanish 2001; Janusek 2004; see Chapter 28 in this volume). On the south coast, the ceremonial center of Las Animas in Ica (Paracas Cavernas, fourth through first centuries BC), can be considered an antecedent of Bajo Chíncha (Topará) and Cahuachi (early Nasca culture, second to fourth centuries AD). All three centers comprise pyramids with stepped terraces that are supported by adobe retaining walls and have rectangular enclosures and roofed areas on their summit (Figure 32.7). Excavations at Cahuachi undertaken by Silverman (1993, 2002 *inter alia*) and by Giuseppe Orefici show that the site was an empty ceremonial center built with labor from several communities, each contributing to the enlargement of its own enclosure. Several sites are known that date to this same period, and that have orthogonal architecture and great size: Chongos (Peters 1987-88) and Dos Palmas (Rowe 1963: plate I) in the Pisco Valley; Paracas (Tello 1959: fig. 2); Ventilla in the Ingenio Valley (Silverman 2002: 50-57); Cordero Bajo in the Ica Valley (Massey 1986). Some of these sites are clearly domestic (e.g., Cordero Bajo), but others (e.g., Chongos) seem to have had public ceremonial functions, given the size of the enclosures and the characteristics of the materials found.

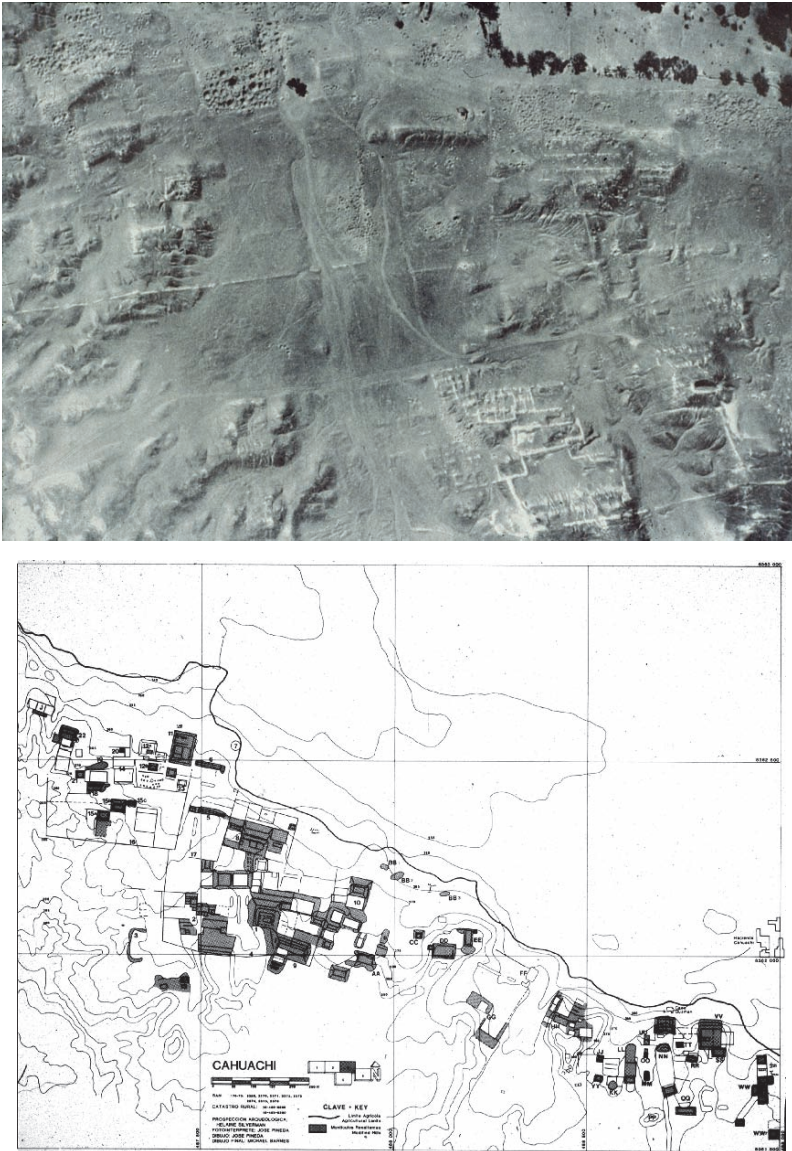


Figure 32.7. Cahuachi, Nazca Valley, south coast of Peru. a. Aerial photograph of central sector of the site (photo: Servicio Aerofotográfico Nacional, Lima). b. Plan showing most of Cahuachi's monumental architecture, many plazas, and open spaces. (See Silverman 1993: figs. 2.3-2.6 for full site plan). (Courtesy: Helaine Silverman)

A similar trend towards nucleation is observable on the north coast from the second century AD onwards. The sites were distributed in complementary regions: the major monumental centers with temples and elite housing were concentrated on the coast, one per valley (e.g., the Gallinazo Group and Huancaco in Virú, Huacas del Sol and de la Luna in Moche, Huacas Cao in Chicama), while villages, elite settlements and defensive

structures formed discontinuous agglomerations on terraced slopes inland, close to canal intakes (e.g., in the Virú Valley).

Two of the arguments usually cited in support of a late date (late Early Intermediate Period and Middle Horizon, ca. AD 400–900) for the first cities in the Central Andes are the sudden and generalized irruption of large agglomerations, as well as the presumed diffusion of planned layouts. The first argument is convincing. Urban-like complexes with a partly disorganized growth that comprised a large core of ceremonial architecture, workshops, areas where food was prepared, storehouses, elite housing, and habitation precincts for the dependent population (e.g., Galindo, Pampa Grande, Marca Huamachuco, Cajamarquilla, Wari, Tiwanaku) were built with remarkable speed after about the sixth century AD. It is possible, given the context of calamities wrought by the weather (prolonged droughts and a super-Niño) and the probable political strife due to Wari expansion, that this phenomenon was a response to a crisis situation. The agglomerations enabled the concentration of warrior elites at a strategic location relative to the irrigation system.

The assumption that orthogonal planned layout is a common trait of all presumably urban settlements, implicitly stated through a comparison with the checkerboard pattern of the Mediterranean cities—following the spatial layout traditionally attributed to Hippodames of Miletus—has proved inapplicable in Andean contexts. The results of recent excavations undertaken on the central coast show ever more clearly that the picture of large planned cities built in Middle Horizon 1, and which presumably retained their layout until the Spanish conquest, was a misconception. Both at Pachacamac (Figure 32.8) and at Armatambo as well as at Cajamarquilla, the layout—which comprises avenues and plazas delimited by long walls—dates to the Late Horizon, as Uhle (1903, reprinted 1991) had correctly suspected; this layout was often superimposed over enclosures and pyramids dating to the Late Intermediate Period, most of them abandoned. The buildings of the Late Intermediate Period (Ychsma) sometimes stand against or on top of mounds that contain Maranga construction (Early Intermediate Period 7–8 and Middle Horizon 1), carefully protected by later fills and coverings. Both the Maranga settlements with monumental architecture (e.g., Maranga, Cajamarquilla, Pachacamac) as well as those dating to the Late Intermediate Period (e.g., Pisquillo Chico) lack a determinant planned layout, and instead comprise independent complexes removed from one another. Each one of the Maranga complexes consists of a pyramid that was often built against the slopes of a hill, and which was surrounded by plazas and enclosures with kitchens, storerooms, areas where activities, such as the preparation of chicha (among others), were carried out, and areas where massive assemblies were held (Mogrovejo and Segura 2001). In all of the complexes thus far excavated, periods of relative lack of occupation separate the two or three successive periods when building activities flourished. Furthermore, each period—Middle Horizon, mid-Late Intermediate Period, Late Horizon—is different from the other as regards the organization of urban space.

Nor do the Wari sites of orthogonal layout thus far excavated, such as Pikillacta (McEwan 2005; Figure 32.3), Azángaro (Anders 1991), and Jincamocco (Schreiber 1992), have characteristics and functions comparable to those of the Greek cities, or the villas with checkerboard layout built in the Spanish colonies. The above-mentioned settlements had the role of administrative (Schreiber 1992) and ceremonial centers (Anders 1991), with a small permanent population in the service of provincial governors and their lineages (McEwan 2005), but with a large number of temporary visitors. Isbell (2004) and Cook (Isbell and Cook 2002) have recently emphasized the palace role that the complexes

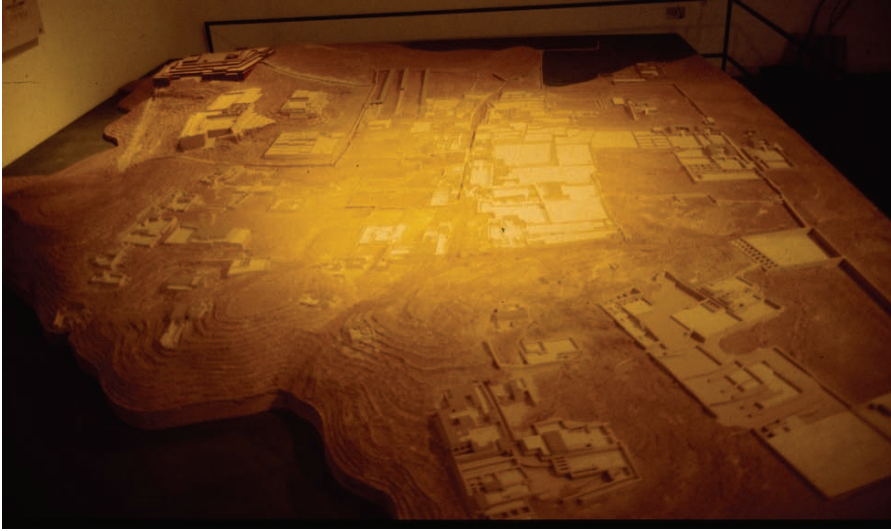


Figure 32.8. Maquette of Pachacamac in the site museum. (photo: Helaine Silverman)

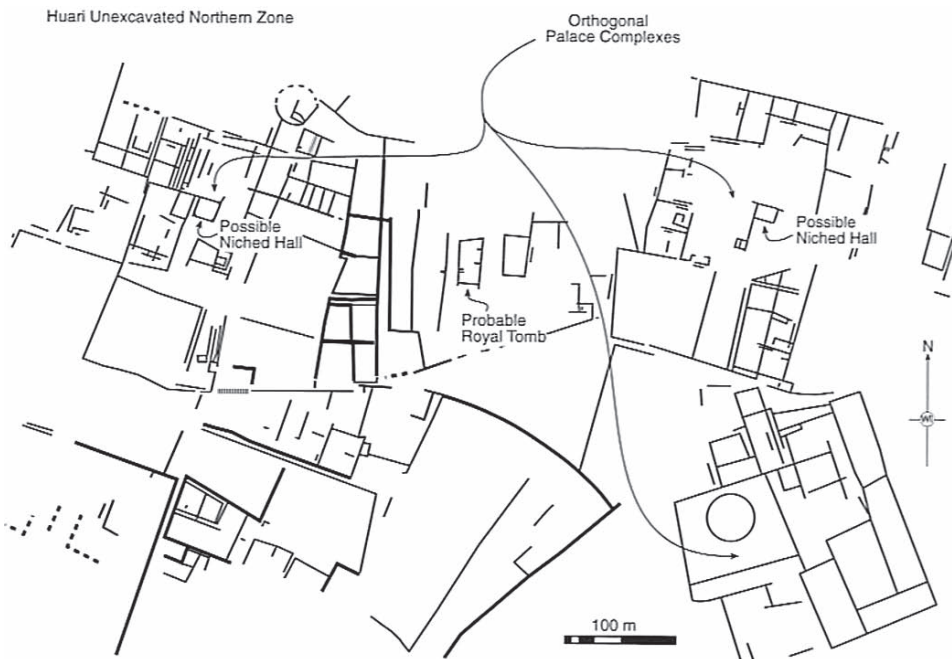


Figure 32.9. Palaces at Huari. (Courtesy: William H. Isbell)

with an orthogonal layout had in Huari (Figure 32.9) and Conchopata, as well as the close relation between the public spaces in their center and the ancestor cult. On the other hand, scholars agree that the north coast's architecture of orthogonal layout (e.g., Pampa Grande, Pacatnamú)—and eventually that of the northern highlands, too (Topic and Topic 2001;

Tschauner 2003)—has local antecedents, and that its development was not related to the Wari phenomenon.

The main support for the empirical distinction between an inhabited ceremonial center and a city has, thus, been questioned, along with the above-mentioned argument regarding the presumably Wari origins of the orthogonal layout. The secular nature of the complexes with an orthogonal layout has not been ascertained, nor has it been verified that the superimposed platform-pyramids and their architectural environment were exclusively meant for religious activities. Indeed, a residential function has been proposed for some enclosures located on the summit of the pyramids of Túcume (Heyerdahl et al. 1995) and at Pachacamac (Eeckhout 1999). Jiménez Borja's (1985) hypothesis that the ramped pyramids at Pachacamac functioned as "religious embassies" is now being challenged, as well as the very model for the way this ceremonial center is believed to have operated, which was inspired by the Greek amphictyony (Eeckhout 1999).

Of the three regional capitals of the Late Intermediate Period on the north coast, Sicán-Batán Grande consisted of large dispersed pyramids with royal burials; Túcume was an agglutinated group of pyramidal structures with intermediate architecture; and only Chan Chan had a planned orthogonal layout. In the well supported interpretations of the Chan Chan Project team (e.g., Moseley and Day 1982: 1–176; Kolata 1990; Topic 2003), the residential sector of Chan Chan, which was characterized by an unplanned growth, grouped houses, workshops and other areas with services that supported the temples and palaces (Figure 32.10). The "palace citadels" (*ciudadelas*) became sanctuaries of the funerary cult after the death of the ruler. The labors of the artisans and agriculturalists who lived in Chan Chan and outside the city were to a great extent meant to meet the ritual needs of the capital. Several features of the architecture of the palaces at Chan Chan are repeated in provincial administrative centers (e.g., Manchán, Farfán), particularly those that may have been related to tax collection (enclosures, *audiencias*, storerooms) and with the ceremonies of the state's religious calendar.

The picture of Inca Cuzco sketched by the chroniclers and revealed by still standing Inca architecture indicate a monumental core comprised of the palaces of royal lineages (the *panacas*) dedicated to the cult of the mummies of their founders, mausoleums, and temples arranged around the two plazas; the city was itself surrounded by cultivation terraces and dispersed villages (Rowe 1967; von Hagen and Morris 1998). Cuzco was also the heart of a centralized state cult, whose secular and religious functions were intertwined. This is suggested by: the political significance of the *ceque* system (Zuidema 1964; Bauer 1998), which sacralized the geographic landscape surrounding the capital; the great Haucaypata plaza with *ushnu* (shrine), which also was the central element in the architectural complexes of the major provincial administrative centers (e.g., Huánuco Pampa, Pumpu, Tambo Colorado), themselves interconnected by the royal highway or *qhapaq ñan*; the secondary administrative centers; the estates of the Inca royalty outside Cuzco (the most famous of which is Machu Picchu, Figure 32.12); and even by the *tambos* (inns) along the highway. The Inca plan, which always adapted to topography, and was therefore unique and unrepeatable, could take an orthogonal layout, have radial axes, and even make the contours of Cuzco's monumental core coincide with the shape of a mythical animal (Hyslop 1990; von Hagen and Morris 1998) (Figure 32.11). The reasons behind Inca choices are not pragmatic but rather related to the location of the settlement vis-à-vis the sacred sites and ceremonial roads.



Figure 32.10. Chan Chan. a. SIAR (small, irregular, agglutinated rooms) alongside a ciudadelá (palace) at Chan Chan. The SIAR are the residential zones of those who supported the needs of the rulers living in the ciudadelas. b. Within the ciudadelas, among other features, were areas of three-sided constructions known as audiencias. These were multi-function structures that served mainly as living and working quarters for Chimú nobility and their families (see Moore and Mackey's discussion in Chapter 39 of this volume). (photos: Helaine Silverman)

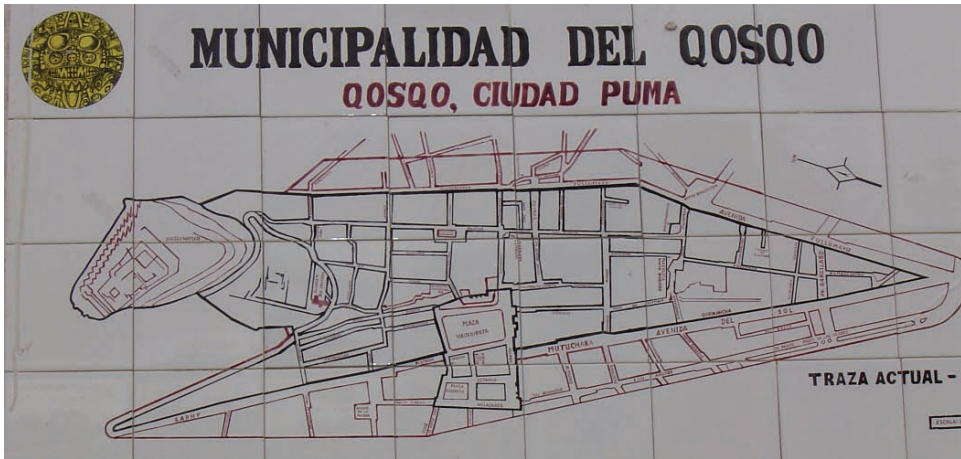


Figure 32.11. Mosaic plan of Inca Cuzco, created by the Municipality, showing its layout in the shape of a puma. (photo: Helaine Silverman)



Figure 32.12. Machu Picchu, Peru's most famous archaeological site. It was the estate of the Inca emperor Pachacutec. (photo: Helaine Silverman)

CONCLUSION

Given the fact that a fixed dividing line cannot be drawn between ceremonial centers, administrative centers, and urban complexes, the future of the study of this *sui generis* Andean urbanism will hinge on the progress made by area excavations, and particularly

the advances made in the study of the specific functions of the forms of public and residential architecture, freed from assumptions inspired by urbanism in the slave societies of the Greco-Roman Mediterranean world, or by the urbanism of the industrialized European West. Also required is a firmly substantiated discussion of the particular characteristics of economic relations in the Andean world.

ACKNOWLEDGMENT This chapter was translated by Javier Flores E.

NOTES

1. By this I mean that there is no evidence of llama caravans (land transportation) or seafaring rafts (maritime transportation) in the Late Pre-ceramic period in this critical norte chico region. See discussion later in the text.
2. Following William H. Isbell's convention, Wari refers to the Middle Horizon culture and state/empire, and Huari refers to the capital city of that political entity.
3. For Southall (1998: 8, 15 ff) there are four evolutionary phases in urban history: the Asiatic Mode of Production: unity of town and country; the Ancient Mode: ruralization of the city; the Feudal Mode: antagonism between town and country; the Capitalist Mode: urbanization of the country. See also Patterson and Gailey (1987).
4. The regions are: the Uruk-Warka hinterland (the lower Euphrates-Tigris basin), the Ur-Eridu hinterland (the lower basin, Euphrates-South West), the hinterland of Nippur (the middle Euphrates-Tigris basin), the Diyala River (the middle Tigris river basin), and the Akkad Hinterland (the middle Euphrates river basin).
5. The middle-sized settlements (5–20 ha, 90% of the sample) instead exclusively characterize the settlement system of the Diyala Valley. The same conditions are found in the Akkad zone, with mid- and small-sized settlements (less than 1 ha). The zone of Ur-Eridu is an intermediate case with just one large center, scant secondary centers (5–20 ha), and a higher number of villages (less than 1 ha).
6. The increase in the population of the Uruk-Warka zone (20,000 in Early Uruk) sped up in Late Uruk and reached a maximum estimated level of about 120,000 inhabitants (150 inhabitants per 1 ha) in Early Dynastic I. In the Early Dynastic II–III there was a noticeable fall to 80,000. In the Nippur zone by contrast, population decreased in time from 50,000 in Early Uruk to less than 20,000 in Early Dynastic II–III. In the Ur-Eridu zone a visible crisis took place in Middle and Late Uruk, with an estimated fall from 9,000 to 3,000 inhabitants. The initial levels were attained once again in Djemdet Nasr and the population grew to 14,000 in the Early Dynastic I–III. The Akkadian area maintained a low population density level throughout the fourth-third millenniums BC, ranging between 2,000 in Early Uruk to 3,800 in Early Dynastic II–III.

REFERENCES

- Adams, Robert McC., 1966, *The Evolution of Urban Society. Early Mesopotamia and Prehistoric Mexico*. Aldine, Chicago.
- , 1981, *Heartland of Cities*. University of Chicago Press, Chicago.
- Akkermans, Peter M. M. G. and Glenn M. Schwartz, 2003, *Archaeology of Syria. From Complex Hunter Gatherer to Early Urban Societies (ca. 16,000 – 300 B.C.)*. Cambridge World Archaeology, Cambridge University Press, Cambridge.
- Algaze, Guillermo, 1993, *The Uruk World System*. University of Chicago Press, Chicago.
- Anders, Martha, 1991, Structure and function at the planned site of Azangaro: cautionary notes for the model of Huari as a centralized secular state. In *Huari Administrative Structure. Prehistoric Monumental Architecture and State Government*, edited by William H. Isbell and Gordon F. McEwan, pp. 165–197. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Bauer, Brian S., 1998, *The Sacred Landscape of the Inca. The Cusco Ceque System*. University of Texas Press, Austin.
- Bawden, Garth, 1990, Domestic space and social structure in pre-Columbian northern Peru. In *Domestic Architecture and the Use of Space: An Interdisciplinary Cross-Cultural Study*, edited by Susan Kent, pp. 153–171. Cambridge University Press, Cambridge.

- Bonnier, Elisabeth, 1997, Pre-ceramic architecture in the Andes: the Mito Tradition. In *Archaeológica Peruana 2: Arquitectura y Civilización en los Andes Prehispánicos*, edited by Elisabeth Bonnier and Henning Bischof, pp. 120–144. Sociedad Arqueológica Peruano-Alemana, Reiss Museum, Mannheim.
- Brennan, Curtis T., 1980, Cerro Arena. Early cultural complexity and nucleation in north coastal Peru. *Journal of Field Archaeology* 7: 1–22.
- Burger, Richard L., 1992, *Chavin and the Origins of Andean Civilization*. Thames and Hudson, London.
- and Lucy Salazar-Burger, 1991, The second season of investigations at the Initial Period center of Cardal, Peru. *Journal of Field Archaeology* 18 (3): 275–296.
- Butterlin, Pascal, 2003, *Les Temps Proto-Urbaines de Mésopotamie*. CNRS éditions, Paris.
- Canziani, José, 1987, *Asentamientos Humanos y Formaciones Sociales en la Costa Norte del Antiguo Perú*. Lima.
- , 1992, Arquitectura y urbanismo del período Paracas en el valle de Chíncha. *Gaceta Arqueológica Andina* 22:87–117.
- Carneiro, Robert, 1970, A theory of the origin of the state. *Science* 169: 733–738.
- Chapdelaine, Claude, 2002, Out in the streets of Moche: urbanism and sociopolitical organization at a Moche IV urban center. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 53–88. Kluwer Academic/Plenum Publishers, New York.
- Childe, V. Gordon, 1974 [1950], The urban revolution. In *The Rise and Fall of Civilizations*, edited by Jeremy Sabloff and C.C. Lamberg-Karlovsky, pp. 6–14. Cummings, Menlo Park, CA.
- Collier, Donald, 1955, Development of civilization on the coast of Peru. In *Irrigation Civilizations: A Comparative Study*, by Julian H. Steward, Robert McC. Adams, Donald Collier, Angel Palerm, Karl A. Wittfogel, and Ralph L. Beals, pp. 19–27. Social Science Monographs 1, Pan American Union, Washington, D.C.
- Daggett, Richard, 1987, Toward the development of the state on the north central coast of Peru. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 70–82. Cambridge University Press, Cambridge.
- Dillehay, Tom D., 2001, Town and country in Late Moche times: a view from two northern valleys. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 259–284. Yale University Press, New Haven.
- , 2004, Social landscape and ritual pause: uncertainty and integration in Formative Peru. *Journal of Social Archaeology* 4 (2): 239–268.
- , Duccio Bonavia, and Peter Kaulicke, 2004, The first settlers. In *Andean Archaeology*, edited by Helaine Silverman, pp. 16–34. Blackwell, Malden.
- D’Altroy, Terence N., 2001, A view of the plains from the mountains: commentary on the Uruk by an Andeanist. In *Uruk, Mesopotamia and Its Neighbors, Cross-Cultural Interactions in Era of State Formation*, edited by Mitchell Rothman, pp. 445–476. School of American Research Press, Santa Fe.
- Donnan, Christopher, and Guillermo A. Cock (eds.), 1986, *The Pacatnamu Papers*, Vol. 1. University of California, Los Angeles.
- and Guillermo A. Cock (eds.), 1997, *The Pacatnamu Papers*, Vol. 2. University of California, Los Angeles.
- Eeckhout, Peter, 1999, *Pachacamac durant l’Intermédiaire Récent. Étude d’un site monumental préhispanique de la Côte Centrale du Pérou*. Oxford, BAR International Series, 747.
- Evans, Susan Toby and Joanne Pillsbury, 2004, *Palaces of the Ancient New World*. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Geertz, Clifford, 1980, *The Theatre State in Nineteenth-Century Bali*. Princeton University Press, Princeton.
- Ghezzi, Ivan, 2004, Religious warfare at Chankillo. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 67–84. Kluwer Academic/Plenum Publishers, New York.
- Haas, Jonathan, 1987, The exercise of power in early Andean state development. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 31–35. Cambridge University Press, Cambridge.
- , Winifred Creamer, and Alvaro Ruiz, 2004, Dating the Late Archaic occupation of the norte chico region in Peru. *Nature* 432:1020–1023.
- and Winifred Creamer, 2004, Cultural transformations in the Central Andean Late Archaic. In *Andean Archaeology*, edited by Helaine Silverman, pp. 35–50. Blackwell, Malden.
- Hagen, Adriana von and Craig Morris, 1988, *The Cities of the Ancient Andes*. Thames and Hudson, London.
- Heyerdahl, Thor, Daniel H. Sandweiss and Alfredo Narváez, 1995, *Pyramids of Túcume: The Quest for Peru’s Forgotten City*. Thames and Hudson, London.
- Hole, Frank, 1994, Environmental instabilities and urban origins. In *Chiefdoms and Early States in the Near East*, edited by Gil Stein and Mitchell S. Rothman, pp. 121–151. Monographs in World Archaeology, No. 18. Prehistory Press, Madison, WI.

- Hyslop, John, 1990, *Inka Settlement Planning*. University of Texas Press, Austin.
- Isbell, William H., 1988, City and state in Middle Horizon Wari. In *Peruvian Prehistory*, edited by Richard W. Keatinge, pp. 164–189. Cambridge University Press, Cambridge.
- , 2001, Huari y Tiahuanaco, arquitectura, identidad y religión. In *Los Dioses del Antiguo Perú*, edited by Krzysztof Makowski, Vol. 2, pp. 1–38. Banco de Crédito, Lima.
- , 2004, Palaces and politics in the Andean Middle Horizon. In *Palaces of the Ancient New World*, edited by Susan Toby Evans and Joanne Pillsbury, pp. 191–246. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and Anita G. Cook, 2002, A new perspective on Conchopata and the Andean Middle Horizon. In *Andean Archaeology II: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 249–305. Kluwer Academic/Plenum Publishers, New York.
- and Katharina J. Schreiber, 1978, Was Huari a state? *American Antiquity* 43 (3): 372–389.
- Janusek, John W., 2004, *Identity and Power in the Ancient Andes: Tiwanaku and Lukurmata*. Routledge, New York and London.
- Jimenez Borja, Arturo, 1985, Pachacamac. *Boletín de Lima* 7 (38): 40–54.
- Johnson, Gregory A., 1973, *Local Exchange and Early State Development in Southwestern Iran*. Anthropological Papers, No. 51. Museum of Anthropology, University of Michigan.
- Kendall, Ann, 1985, *Aspects of Inca Architecture. Description, Function and Chronology*, 2 vols. British Archaeological Reports, International Series, 242.
- Kolata, Alan L., 1990, The urban concept of Chan Chan. In *The Northern Dynasties: Kinship and Statecraft in Chimor*, edited by Michael E. Moseley, Alana Cordy Collins and Maria Rostworowski, pp. 107–144. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1997, Of kings and capitals: principles of authority and the nature of cities in the native Andean state. In *The Archaeology of City-States: Cross-Cultural Approaches*, edited by Deborah L. Nichols and Thomas H. Charlton, pp. 245–254. Smithsonian Institution Press, Washington, D.C.
- , 2003, The social production of Tiwanaku: political economy and authority in a native Andean state. In *Tiwanaku and Its Hinterland: Archaeology and Palaeoecology of an Andean Civilization*, edited by Alan L. Kolata, Vol. 2, pp. 449–472. Smithsonian Institution Press, Washington, D.C.
- Lumbreras, Luis G., 1974, *The Peoples and Cultures of Ancient Peru*. Smithsonian Institution Press, Washington, D.C.
- , 1975, *Las Fundaciones de Huamanga*. Lima.
- , 1986, Childe and the urban revolution: the Central Andean experience. In *The Gordon Childe Colloquium*. Mexico.
- Makowski, Krzysztof, 1996, La ciudad y el origen de la civilización en los Andes. *Cuadernos de la Facultad de Letras y Ciencias Humanas de la Pontificia Universidad Católica del Perú*, 15. Lima. Reprinted in *Estudios Latinoamericanos* 17: 63–89. Sociedad Polaca de Estudios Latinoamericanos, Warsaw.
- , 2002, Il fenómeno dell'urbanizzazione. La nascita e lo sviluppo delle città in America Meridionale. In *Il Mondo dell'Archaeologia*, Vol. 1 s.v. Istituto della Enciclopedia Italiana, Rome.
- Mann, Michael, 1986, *The Source of Social Power, Vol. 1. A History of Power from the Beginning to A.D. 1760*. Cambridge University Press, Cambridge.
- Manzanilla, Linda (ed.), 1997, *Emergence and Change in Early Urban Societies*. Plenum, New York.
- Massey, Sarah A., 1986, Sociopolitical Change in the Upper Ica Valley, BC 400 to 400 AD: Regional States on the South Coast of Peru. Ph.D. dissertation. Department of Archaeology, University of California, Los Angeles.
- McEwan, Gordon, 2005, *Pikillacta. The Wari Empire in Cuzco*. University of Iowa Press, Iowa City.
- Mogrovejo, Juan, and Rafael Segura, 2001, El Horizonte Medio en el conjunto arquitectónico Julio C. Tello de Cajamarquilla. *Boletín de Arqueología PUCP* 4: 565–582. *Huari y Tiahuanaco. Modelos vs. Evidencias. Primera parte*, edited by Peter Kaulicke and William H. Isbell. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Moore, Jerry D., 1996, *Architecture and Power in the Ancient Andes. The Archaeology of Public Buildings*. Cambridge University Press, Cambridge.
- Morris, Craig, 1972, State settlements in Tawantinsuyu: a strategy of compulsory urbanism. In *Contemporary Archaeology*, edited by Mark P. Leone, pp. 393–401. Southern Illinois University Press, Carbondale.
- and Donald E. Thompson, 1985, *Huánuco Pampa: An Inca City and its Hinterland*. Thames and Hudson, London.
- Moseley, Michael E. and Kent C. Day (eds.), 1982, *Chan Chan. Andean Desert City*. School of American Research, Santa Fe and University of New Mexico Press, Albuquerque.

- Murra, John V., 1972, El "control vertical" de un máximo de pisos ecológicos en la economía de las sociedades andinas. In *La Provincia de León de Huanuco en 1562, Inigo Ortiz de Zúñiga, Visitador*, edited by John V. Murra, Vol. 2, pp. 427–476. Universidad Nacional Hermilio Valdizán, Huánuco, Perú.
- Onuki, Yoshio (ed.), 1995, *Kuntur Wasi y Cerro Blanco. Dos Sitios del Formativo en el Norte del Perú*. Hokusen-Sha.
- Patterson, Thomas C. and Christine Gailey, 1987, Power relations and state formation. In *Power Relations and State Formation*, edited by Thomas C. Patterson and Christine Gailey, pp. 1–26. American Anthropological Association, Washington, D.C.
- Peters, Ann H., 1987–88, Chongos: sitio Paracas en el valle de Pisco. *Gaceta Arqueológica Andina* 16: 30–34.
- Pozorski, Shelia and Thomas Pozorski, 1987, *Early Settlement and Subsistence in the Casma Valley*. University of Iowa Press, Iowa City.
- and Thomas Pozorski, 1991, Storage, access control, and bureaucratic proliferation: understanding the Initial Period (1800–900 B.C.) economy at Pampa de las Llamas-Moxeke, Casma Valley, Peru. *Economic Anthropology* 13: 341–371.
- Ramazzotti, Marco, 2003, Modeli insedimentali alle soglie del protodinastico in Mesopotamia Meridionale, Centrale e Nord-Orientale. Apunti per una critica alla formazione "secondaria" degli stati nel III millennio a.C. *Contributi e Materiali di Archeologia Orientale* IX: 15–71. Università degli Studi di Roma "La Sapienza," Dipartimento di scienze storiche, archeologiche e antropologiche dell'Antichità.
- Rowe, John H., 1963, Urban settlements in ancient Peru. *Ñawpa Pacha* 1: 1–27.
- , 1967, What kind of a settlement was Inca Cuzco? *Ñawpa Pacha* 5: 59–76.
- Rothman, Mitchell S., 2002, *The Evolution of a Small Prehistoric Center in Northern Iraq*. University Museum Publications, Philadelphia.
- , 2004, Studying the development of complex society: Mesopotamia in the late fifth and fourth millennia B.C. *Journal of Archaeological Research* 12 (1): 75–119.
- Schaedel, Richard P., 1966, Incipient urbanization and secularization in Tiahuanacoid Peru. *American Antiquity* 31: 338–344.
- , 1978, The city and the origin of the state in America. In *Urbanization in the Americas from its Beginnings to the Present*, edited by Richard P. Schaedel, pp. 31–49. The Hague.
- , 1980, The growth of cities and the origins of complex societies in the New World. In *Origins of Cities and Complex Societies in the Americas. A Brief Reader*, edited by Richard P. Schaedel, pp. 1–9. Latin American Institute, Berlin.
- , 1980, The commonality in processual trends in the urbanization process: urbanization and the redistributive function in the Central Andes. In *Origins of Cities and Complex Societies in the Americas. A Brief Reader*, edited by Richard P. Schaedel, pp. 10–24. Latin American Institute, Berlin.
- Schreiber, Katharina, 1992, *Wari Imperialism in Middle Horizon Peru*. Anthropological Papers, No. 87. Museum of Anthropology, University of Michigan, Ann Arbor.
- Shady, Ruth, 2006, America's first city? The case of Late Archaic Caral. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 28–66. Springer, New York.
- and Carlos Leyva (eds.), 2003, *La Ciudad Sagrada de Caral, Supe. Los Orígenes de la Civilización Andina y la Formación del Estado Prístino en el Antiguo Perú*. Proyecto Especial Arqueológico Caral-Supe, Instituto Nacional de Cultura, Lima.
- , Jonathan Haas, and Winifred Creamer, 2001, Dating Caral, a pre-ceramic site in the Supe Valley on the central coast of Peru. *Science* 292: 723–726.
- Shimada, Izumi, 1991, Pachacamac Archaeology: Retrospect and Prospect. In *Pachacamac. A Reprint of the 1903 Edition by Max Uhle*, edited by Izumi Shimada, pp. 15–66. University Museum Monograph, 62. University Museum of Archaeology and Anthropology, University of Pennsylvania, Philadelphia.
- , 1994, *Pampa Grande and the Mochica Culture*. University of Texas Press, Austin.
- Silverman, Helaine, 1993, *Cahuachi in the Ancient Nasca World*. University of Iowa Press, Iowa City.
- , 1996, The Formative Period on the south coast of Peru: a critical review. *Journal of World Prehistory* (10) 2: 95–146.
- , 2002, *Ancient Nasca Settlement and Society*. University of Iowa Press, Iowa City.
- Southall, Aidan, 1998, *The City in Time and Space*. Cambridge University Press, Cambridge.
- Stanish, Charles, 2001, The origin of the state in South America. *Annual Review in Anthropology* 30: 41–64.
- Steward, Julian H., Robert McC. Adams, Donald Collier, Angel Palerm, Karl A. Wittfogel, and Ralph L. Beals, 1955, *Irrigation Civilizations: A Comparative Study*. Social Science Monographs 1, Pan American Union, Washington, D.C.
- Swenson, Edward R., 2003, Cities of violence. *Journal of Social Archaeology* 3 (2): 256–296.

- Tellenbach, Michael, 1986, *Las Excavaciones en el Asentamiento Formativo de Montegrande, Valle de Jequetepeque en el Norte del Perú*. Materialien zur Allgemeinen und Vergleichenden Archäologie, Band 39. Verlag C. H. Beck, Munich.
- Tello, Julio C., 1956, *Arqueología del Valle de Casma*. Publicación Antropológica del Archivo "Julio C. Tello" de la Universidad Nacional Mayor de San Marcos, Lima.
- _____, *Paracas. Primera Parte*. Gráfica Scheuch, Lima.
- Topic, John R., 2003, From steward to bureaucrats: architecture and information flow at Chan Chan, Peru. *Latin American Antiquity* 14 (3): 243–274.
- _____, and Theresa Lange Topic, 1997, Hacia una comprensión de la guerra andina. In *Arqueología, Antropología e Historia en los Andes. Homenaje a María Rostworowski*, edited by Rafael Varón Gabai and Javier Flores Espinoza, pp. 567–590. Instituto de Estudios Peruanos and Banco Central de Reserva, Lima.
- _____, and Theresa Lange Topic, 2001, Hacia la comprensión del fenómeno huari: una perspectiva norteña. *Boletín de Arqueología PUCP* 4: 181–218. *Huari y Tiahuanaco. Modelos vs. Evidencias. Primera Parte*, edited by Peter Kaulicke and William H. Isbell. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Trigger, Bruce G., 1985, The evolution of pre-industrial cities: a multilinear perspective. In *Mélanges offerts à Jean Vercoutter*, edited by Francis Geus and Florence Thill, pp. 243–253. Editions Recherches sur les Civilizations, Paris.
- _____, 2003, *Understanding Early Civilizations. A Comparative Study*. Cambridge University Press, Cambridge.
- Tschauner, Hartmut, 2003, Honco Pampa: arquitectura de élite del Horizonte Medio en el Callejón de Aguilas. In *Arqueología de la Sierra de Ancash. Propuestas y Perspectivas*, edited by Bebel Ibarra Asencios, pp. 193–220. Instituto Cultural Runa, Lima.
- Yoffee, Norman, 1993, Too many chiefs? In *Archaeological Theory. Who Sets the Agenda?*, edited by Norman Yoffee and Andrew Sherratt, pp. 60–78. Cambridge University Press, Cambridge.
- _____, 1995, Political economy in early Mesopotamian states. *Annual Review of Anthropology* 24: 281–311.
- Wiley, Gordon R., 1953, *Prehistoric Settlement Patterns in the Viru Valley, Northern Peru*. Bulletin 135, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Wilson, David. J., 1988, *Prehistoric Settlement in the Lower Santa Valley, Peru*. Smithsonian Institution Press, Washington, D.C.
- _____, 1997, Early state formation on the north coast of Peru: a critique of the city-state model. In *The Archaeology of City-States: Cross-Cultural Approaches*, edited by Deborah L. Nichols and Thomas H. Charlton, pp. 229–244. Smithsonian Institution Press, Washington, D.C.
- Wheatley, Paul, 1971, *The Pivot of Four Quarters*. Aldine, Chicago.
- Wilkinson, Toby A. H., 2001, *Early Dynastic Egypt*. Routledge, London and New York.
- Wright, Henry T., 1969, *The Administration of Rural Production in an Early Mesopotamian Town*. Anthropological Papers, No. 38. Museum of Anthropology, University of Michigan.
- _____, and Gregory A. Johnson, 1975, Population exchange and early state formation in southwestern Iran. *American Anthropologist* 77 (2): 267–289.
- Zuidema, R. Tom, 1964, *The Ceque System of Cuzco*. E. J. Brill, Leiden.

The Tupi Expansion

FRANCISCO SILVA NOELLI

INTRODUCTION

The Tupi of Brazil undertook an enormous territorial expansion more than 2,000 years ago. The word Tupi is applied to a linguistic stock that encompasses approximately 41 languages that spread, several millennia ago, throughout eastern South America (Brazil, Peru, Bolivia, Paraguay, Argentina, Uruguay). Of those 41 languages, the two most frequently mentioned since the arrival of Europeans have been Guaraní and Tupinambá. The term Tupi is also used to refer to the speakers of these languages.

Since the nineteenth century scholars have been interested in the Tupi phenomenon. Today a consensus exists on the two following points. First, there was a common center of origin, from which the Tupi fanned out. Second, the Tupi differentiated through distinct historic and cultural processes while keeping several common features.

But there is no consensus as to *where* the Tupi center was located and *where* their routes of expansion passed. Since 1960 archaeological data (site location, radiocarbon dating, thermoluminescence dating) and linguistic data (glottochronology, relationships among languages) have been brought to bear on the Tupi problem. In this chapter I argue that enough elements exist to link prehistoric and historic Tupian groups, thereby setting the stage for understanding Tupi origins, continuities, changes, and/or extinction. I also argue that chronology can now be based on archaeological and linguistic evidence rather than earlier speculations, which distorted prehistoric events.

Noelli's paper (1998) included discussion of nineteenth and much of twentieth century research on the Tupi. I do not repeat that information here. Suffice it to say that for more than a century, between 1838 and 1946, hypotheses were developed with historical and ethnographic data and were influenced by theories ranging from degenerationism to racial and geographic determinism to evolutionism. Most theories were based on the historic location of known Tupian people. With the publication of the *Handbook of South American Indians* in the late 1940s, archaeological information has been interpreted in frameworks of ecological determinism and diffusionism. During the same period, methods

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

of historical linguistics were introduced, especially to identify the relationships among kin languages. As with debates about origins and cultural evolution elsewhere in South America, two of the key figures in the Tupi origins and migration debate were Betty J. Meggers (1963, 1972, 1975, 1976, 1982) and Donald W. Lathrap (1970). PRONAPA (Programa Nacional de Pesquisas Arqueológicas) was very active in Tupi archaeology at the same time, 1965–1970 (e.g., PRONAPA 1970) [Note 1]. It was also in this period that Jose Brochado (1973, 1984; Brochado et al. 1969) worked intensively on Tupi archaeology. Brochado subsequently completed doctoral studies at the University of Illinois in Urbana-Champaign under the mentorship of Lathrap (see Brochado 1984).

MIGRATION OR EXPANSION?

Terminology used for population shifts of the Tupi has regarded these shifts simply as *migrations*—a moving from one place to another, abandoning the original region. This term is appropriate for the movement that the Tupi undertook when pressed by other people, for instance the migrations after AD 1500 when they sought to escape the Europeans (see Métraux 1927).

But the term “migration” does not adequately cover those Tupian peoples who moved in other ways, possibly for other reasons, such as demographic growth, the breaking-up of villages, forestry management, and so on. According to archaeological studies, the Tupi held possession of their domains for long periods, expanding to new territories without abandoning old ones (Brochado 1984; Scatamacchia 1990; Noelli 1993b). Studies in ethnobiology and native South American history demonstrate that territories under the domain of some Tupian people were slowly conquered, managed, and tapped for a long time in an important aspect of *expansion* (Noelli 1993a, 1993b), the better term for these population shifts. Expansion means spreading, a conquering of new regions without migration’s implication of an abandonment of previous territory.

The geographical detection of prehistoric routes of movement depends on relating the location of archaeological sites to their dates. From site location and radiocarbon dates, Brochado (1973) detailed a “migration” schema for the regions surveyed by PRONAPA, with the “Tupiguarani” expansions occurring in two “migratory waves,” one prehistoric and one after the European arrival. The first wave was represented by pottery, known as the Pintada Subtradition, the second by the Corrugated Subtradition. After European contact, the Corrugated Subtradition transformed into the Brushed Subtradition, another subtradition characterized in its ceramic expression by the predominance of a certain surface finish. Afterward, in his dissertation (Brochado 1984: 69–77) and at several scientific congresses, Brochado completely refuted the existence of these subtraditions: it had all resulted from confusion created by the indiscriminate mixture of Guarani and Tupinambá pottery.

Lathrap (1970: 75–78, fig. 5), amalgamating archaeological, linguistic and ethnographic data (principally the archaeological data), proposed a radial expansion of the Tupi based on geographical distribution. This rather synthetic and deductive model led to intellectual conflict with the PRONAPA archaeologists, including Meggers. Although Lathrap’s field methodology was not very different from PRONAPA’s, his work was driven by different theoretical conceptions.

Meggers and Evans (1973) proposed that from an origin east of the Madeira River the Tupi expanded towards the south of Brazil and then to the north (Meggers 1972: 129, 1975, 1976, 1982; Meggers and Evans 1973, 1978: figs. 7, 8; Meggers et al. 1988: fig. 5).

But she did not mention the full comparative archaeological analysis concerning the Tupi. Instead, the stratigraphical sequences of the middle-lower Amazon were privileged and sequences from outside Amazonia were excluded. At the same time that Meggers assumed an “incapacity of lexico-statistical methods to reveal earlier locations of speakers of akin languages,” she and Evans (1976: 60) based arguments about Tupi expansion on historical linguistics and historical information analyzed earlier by Métraux (1927).

Following Lathrap, Brochado (1984:2–39) matched internal divisions of the Tupi stock, from Proto-Tupi to historic languages and dialects, to the model of evolution and differentiation of Amazonian pottery (Lathrap 1970; Brochado and Lathrap 1982). After observing the Proto-Tupi divisions proposed by Rodrigues (1964) and Lemle (1971), Brochado verified the correspondences, considering that material and linguistic differentiations must have been concomitant. Since then Brochado has seen the need to expand regional investigations and the multidisciplinary links that ensure consistent results for each Tupian group (Jose Brochado, personal communication, 1993).

Brochado (1984, 1989) hypothesizes that Proto-Tupi resulted when the makers of the Guarita Tradition pottery (of the Amazonian Polychrome Tradition) split, somewhere in central Amazonia. Based on historical linguistic assumptions, he considered the differentiation of languages and of pottery to have resulted from the spatial temporal splitting of Proto-Tupi, caused by continuous demographic growth in the heart of Amazonia. This division links the Guarani to the pottery of western Amazonia, and the Tupinambá to that of eastern Amazonia. The expansion is seen as having two periods, a first alongside the principal rivers, a second colonizing the smaller tributaries.

In the case of the Guarani, colonizations followed a north-south direction, from Amazonia to the mouth of the River Plate, through the courses of the Paraná, Paraguay, and Uruguay rivers; there are sites from Corumbá (Peixoto 1995) to Buenos Aires. To the east, the Tupinambá, leaving the mouth of the Amazon, followed the coastline as far as São Paulo, moving up the Atlantic rivers into the hinterlands.

Brochado (1984; Brochado and Lathrap 1982) concluded that the Guarani pottery in the Guarita tradition lost decorative techniques—modelling, excision and incision in fine and long lines—during the southward expansions outside Amazonia, through the Maderia and Guaporé rivers. Bowls with everted and thickened rims disappear; labial and medial flanges replace decoration of the Guarita tradition. New, cone-shaped pans and jars resulted from contact with pottery-makers from eastern Bolivia and Peru. This characteristic Guarani pottery—both archaeological and historical—has a complex or inflected contour, developed waist and/or horizontal segmentation; corrugated or painted, it is utilized secondarily as burial urns.

There is no archaeological record for the Tupi of the lower Amazon. Brochado proposed that from their center of origin the Tupinambá shifted eastwards through the middle course of the river and, leaving its mouth, moved southwards to colonize the coastline as far as the Tropic of Capricorn. Some constituent features of Tupinambá pottery are found in the lower Amazon and in the Marajora style. These features appear on most of the open pots, including those with oval and quadrangular mouths, and the polychromatic paint concentrated on the everted and thickened rims (features not occurring in the Maderia-Guaporé and Paraná-Paraguay basins). This pottery does not include most of the closed shapes, principally anthropomorphic, nor the incision, excision, or modelling techniques. From comparisons between Tupinambá and Marajoara pottery and the indication that the Tupinambá had occupied the lower Amazon, Brochado and I suggest that Marajoara pottery may derive from Tupinambá pottery (Brochado and Noelli n.d.).

Comparing shape and decoration, Brochado (1984) demonstrated that Tupinambá pottery could not have evolved and unfolded outside Amazonia, next to Paraguay, as was proposed in the nineteenth century. Nor was it dispersed first southwards and then to the north of Brazil, as suggested by Meggers: there is no material evidence of a sequence outside Amazonia, in eastern South America. What is fundamental in Brochado's work is his proposal, since 1984, of a specific Tupinambá Subtradition, used exclusively by Tupinambá speakers, that differentiates them from the other Tupi groups. The Guarani Subtradition remains intact (Brochado 1984).

Linguistic work published after Brochado's 1984 dissertation (e.g., Rodrigues 1984–85, 1986) makes it unlikely that the Tupinambá colonized the Brazilian coast and hinterlands from Paraguay to the south of Brazil and then moved towards northeastern/northern Brazil. Considered the most ancient language of the Tupi-Guarani family (Jensen 1989:13), the Tupinambá could not have derived from the Guarani, the only Tupian-speaking pottery-makers south of São Paulo. Relations between Tupinambá and Kokáma may explain and confirm the origin of the Tupinambá, if it can be determined whether the Kokáma belongs to Tupian stock or is a Tupian language, adopted by a group of non-Tupian people. Kokáma and Tupinambá share characteristics absent from languages of the Tupi-Guarani family south of the Amazon River, in the Madeira-Tapajós, Tocantins-Araguaia and Xingu regions. This strengthens Brochado's hypothesis that the Tupinambá expansions started in the lower Amazon and followed the Atlantic coastline southwards.

If Tupinambá pottery derives from Guarani pottery, moving beyond the Paranapanema in a south-to-north diffusion, it changed drastically to include shapes and surface finish techniques absent from southern Brazil. How did this occur, if constituent elements of the Tupinambá pottery originated exclusively in Amazonia? Brochado has proposed several scenarios (Brochado 1984, personal communication 1990), but recognizes that ultimately the issue will be resolved only by more information about the Tupi.

Linguist Greg Urban (1992: 92–93) has proposed an expansion hypothesis, based on the Rodrigues (1945 through 1986) and Lemle (1971) studies. He connects linguistic derivation more explicitly to geographical expansion. Using exclusively linguistic data, Urban divides the expansion into two successive stages, in terms of distance from the origin, according to the Rodrigues (1964) chronology.

Urban's first stage occurred 5,000 to 3,000 years ago and corresponded to the early division and expansion of the Tupian stock (which Urban calls Macro-Tupi) in the center-western region of Brazil, between the Madeira and the Xingu rivers, as far as the Amazon River, with more concentration and diversity in Rondônia.

Urban's second stage occurred 3,000 to 2,000 years ago and is no longer associated with the early Tupi expansion. It corresponds to the geographical expansion of the Tupi-Guarani family.

Urban also suggests a third recent phase of expansion, ca. AD 1000 (but we now know that date is incorrect in light of older radiocarbon dates: see below). In Urban's scheme the recent expansion is no longer associated with the early Tupi expansion, but rather with the expansion of Chiriguano and Guayano speakers to Bolivia, the Tapieté and Guarani to Paraguay, and the 'Kaingwa' to the region between Paraguay, Argentina and Brazil. Finally, the Tupinambá, Tupiniquin and Potiguara settled down on the Brazilian coast. They were originally speakers of the same language of "Tupiguarani, not to be mistaken with the family which is much wider" (Urban 1992: 92).

Arguing that the Tupi-Guarani family started its expansion "somewhere between the Madeira and the Xingu rivers," Urban suggested that the first derivation must have

occurred toward the Amazon River, through the Kokáma and the Omágua, who shifted to the Amazon River. “About the same time,” the Guaiaki moved southwards, reaching Paraguay, while the Siriono moved southwestwards, as far as Bolivia. This movement was followed by Pauserna and Kawahib (Parintintin) speakers westwards; the Kayabi and Kamayurá alongside the Xingu; the Xetá towards the south of Brazil; the Tapirapé, Tenetehara and, perhaps, Wayampi moving as far as Guyana, into a region close to the mouth of the Amazon (Urban 1992: 92). Gallois (1986: 77–85) shows that the Wayampi arrived in Guyana in the seventeenth century, much later than Urban suggests; they migrated from the Xingu when pushed out by Luso-Brazilian slave hunters.

By stating that there had been a language called Tupi-Guarani, Urban revives a nomenclature resolved in the late 1940s, since from then Tupi-Guarani has referred to a linguistic *family* rather than a *language*. I argue it is more appropriate to talk of a “proto”-Tupi-Guarani, the language from which the current languages of the Tupi-Guarani family originated.

CHRONOLOGY OF TUPIAN EXPANSIONS

In dealing with Tupian chronology a relative pottery sequence is rejected because the ceramic series have not provided accurate datings. Rather, glottochronology and absolute dating (radiocarbon, thermoluminescence) are more reliable.

According to Rodrigues’ (1958, 1964) glottochronological datings, Proto-Tupi, the language in which the components of the Tupian stock originated, was formed around 5,000 years ago; the Tupi-Guarani family was formed some 2,500 years later. Absolute dates show that the Guarani inhabited Paraná and Rio Grande do Sul at least 2,200 years ago; the Tupi-nambá were in Piauí, São Paulo and Rio de Janeiro as early as 1,800 years ago. Several radiocarbon and thermoluminescence dates later than AD 1 are known for sites in the Amazon and Paraná-Paraguay basins, Rio Grande do Sul, Atlantic coast, and coastal rivers (Brochado 1973, 1984; Brochado and Lathrap 1982; Scatamacchia 1990). These dates are much older than what was envisioned by early ethnographers who had posited a quick expansion, close to the time of the Europeans, with the cultural uniformity of the Tupi materializing just before the break-up of Tupian groups towards the sixteenth century.

There are few absolute dates compared to the number of sites. Dating is unequally distributed in the regions occupied by the Tupi. Nevertheless, these radiocarbon dates show that the expansion and differentiation of some people was not recent. The dates suggest we should date the expansion of the Tupi-Guarani family much earlier than 2,500 years ago.

Three regions provide dates close to AD 1: Santa Maria-RS, about AD 150; Ivaí River-PR, about AD 100; lower Tietê-SP, about AD 232; São Raimundo Nonato-PI, about AD 260; coast of Rio de Janeiro, about AD 300. Some of these datings are isolated; others are part of sequences that reach historic times. In regions far from the proposed centers of origin—in deep southern Brazil, the northeast, coastal Rio de Janeiro—the dates attest to the antiquity of the expansions, and can be related to linguistic derivations. The few dates available for Argentina, Uruguay, Paraguay, and Bolivia are all later than the tenth century (Brochado 1984). In Peru and its neighboring Brazilian regions, the pottery associated with the Kokáma, Omágua and Kokamíya still needs detailed study.

Other regions also yield dates close to the oldest: in the Mogi-guaçu River about AD 400; coast of Rio de Janeiro, about AD 440; Santa Maria-RS, about AD 475; middle Ivaí-PR, about AD 460 (and an early date of AD 70); lower Tietê-SP, about AD 578.

Dates closer to the present occur in several parts of eastern South America. On the southeastern and northeastern coast of Brazil we have: lower Tietê-SP, about AD 668; Curimataú-RN, about AD 800; coast of Rio de Janeiro, about AD 870; Cricaré-ES, about AD 895; Guaratiba-RJ, about AD 980.

So the Tupian people were already spread over Brazil as early as 2,000 years ago, in regions very distant from one another and from the proposed centers of origin. This renders obsolete earlier ideas (i.e., Martius' account, repeated by many scholars), of a quick Tupian expansion shortly before the European arrival.

TUPINAMBA

The Tupinambá expanded from the lower Amazon, passing through its mouth towards the Brazilian coastline, from north to south as far as the Tropic of Capricorn. Parallel to this, other groups penetrated the interior, going upstream within the basins that flow into the Atlantic. There is no evidence in all the historically and archaeologically known Tupinambá territory of a relationship between Tupinambá strata and the strata below. This proves that Tupinambá pottery did not develop outside Amazonia.

GUARANI

Archaeologically, except for the frontier with other Tupi groups, in all the Guarani territory studied, south of Parallel 17°, there is no direct Guarani connection to evidence of earlier occupations. Linguistically, the Guarani language is closer to the Tupi-Guarani family spoken in southern Bolivia, Paraguay and southern Brazil (except the Tupinambá). Most of these languages do not derive from the Guarani, which makes a south-north expansion unlikely. A region to be studied in detail stretches north of Parallel 17°, the Guaporé, and the western border to the Pantanal, in Bolivia.

LAND, VILLAGE, AND EXPANSION

In research on Guarani subsistence practices (Noelli 1993b), to which I applied a broader integration between archaeological, linguistic, historical, ethnographic, ethnobiological, and ecological data, I was able to conclude that the Tupi were highly sedentary. A consequence of the territorial expansion must have been demographic growth and the breaking-up of villages. The people whose lands were claimed must have resisted expansion, in turn implying interethnic relationships, bellicose and friendly.

Concomitantly, the management of crops and plant-gathering directly influenced the rhythm of expansion. The Tupi transported their plants, introducing them to all the regions in which they settled; they also took up new vegetables. These processes required investment by the Tupi in what we can call "research time" and in preparing the environment, in transforming the primary forest into known and productive areas (Balée 1994). The life cycle of plants is another factor in the rhythm of expansions.

As a village could not occupy new lands without their prior preparation, it could not move into far-away territory. The expansion must have taken place not by leaps, but through the slow and continuous annexation of lands immediately adjacent to the occupied territories, as ethnobiological studies of tropical and subtropical peoples have been demonstrating.

The key issue that allows us to understand the variables conditioning the Tupi expansions is related to territoriality, with its social units marked by consanguineous relations and alliances, what is called *tekohá* in Guarani (Noelli 1993b; Melia 1986). The corresponding term in Tupinambá is *tecoaba* (VLB: 127).

Tekohá is the territory that corresponds to a village, with its hunting and fishing grounds, its crops, its natural resources for gathering and for raw materials, delimited by geographical elements and predominantly exploited by the group occupying these lands. Under normal conditions, dwellings would change within the managed lands of a tekohá. The formation of a new tekohá depended on the division of an original village, rather than its abandonment.

Archaeology and linguistics provide some evidence that these peoples remained in the same place, from which they slowly broke up. Several Guarani lands show a continuous occupation for over 1,500 years, and Tupian lands for over 1,000 years, in a permanence that may indicate a slower rhythm of movement. Several groups of Tupian people may have lived for at least 5,000 years in the Guaporé basin and adjacent regions.

CONCLUSION

The Tupian people were already spread over Brazil as early as 2,000 years ago, in regions very distant from one another and from the proposed centers of origin. The Tupinambá and the Guarani were already occupying most of their historically known territories at least 2,000 years ago. Thus, there was not a rapid Tupian expansion shortly before the European arrival, as early scholars had argued. Moreover, the most recent research in Amazonia (in which far less research has been conducted than in southern Brazil) is yielding absolute dates that reveal even earlier cultural phenomena—pottery, agriculture, chiefdoms—data, which demonstrate that some common Tupian elements derive from cultures of yet greater antiquity.

Moreover, the Tupian archaeological evidence presents elements closely linked to the stratigraphical sequences of central Amazonia (Figure 33.1), especially with those classified in the Amazonian Polychrome Tradition (Brochado 1984: 308; Lathrap 1970; Brochado and Lathrap 1982; Roosevelt 1991a, 1991b: 98–125). Parallel to this, the linguistic data show the greatest concentration of families and Tupian languages south of the Amazon (Rodrigues 1964, 1986; Urban 1992), and traces of a very ancient linguistic connection between the Proto-Tupian and Proto-Carib languages (Rodrigues 1985:393–400).

Within the huge Amazonian region, there is a space in which the center of origin of the Tupi may be located. It is bounded: on the north by the right bank of the middle and lower Amazon; on the east by the Tocantins; on the west by the basins of the Madeira and lower-middle Guaporé; on the south, by a line running from the middle Guaporé (Parallel 12° 30') as far as the Tocantins, close to the mouth of the Araguaia. These generic boundaries circumscribe a probable center of origin somewhere within them.

The center of origin may be in that region's western portion. The linguistic consensus sets it there, in the largest concentration of families (principally close to the Madeira-Guaporé basin). The best archaeological model is Lathrap's and Brochado's, which points to the region by the confluence of the Madeira and Amazon rivers (Figure 33.2). If Lathrap's hypothesis of the Proto-Tupi people being pushed towards the south is correct, an explanation follows as to why the center of origin of pottery is far from the region where the linguistic families of the Tupi stock were formed.

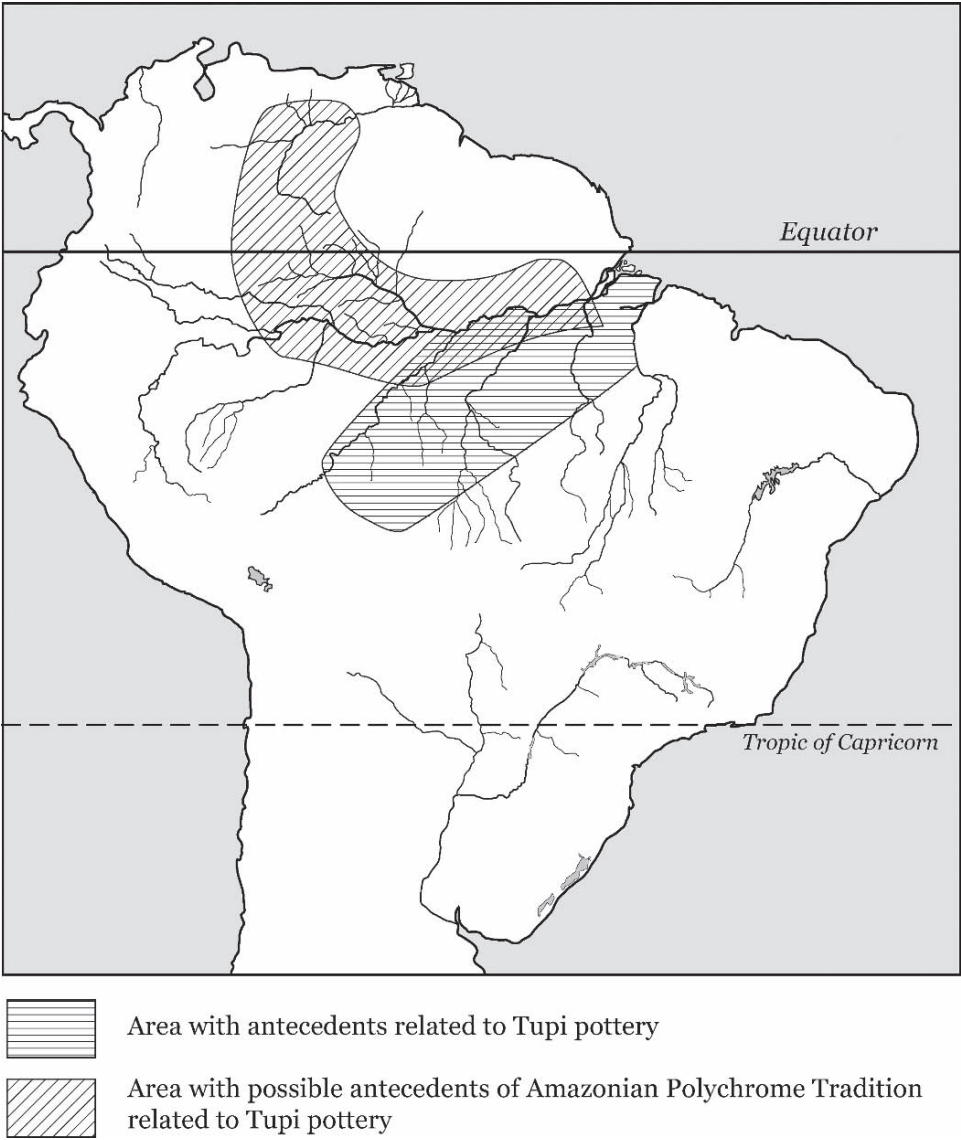


Figure 33.1. Distribution of polychrome pottery in Amazonia. (Adapted from Noelli 1998: fig. 1 by Steven J. Holland)

Clarification of the expansion routes from that center of origin depends on the relationship between archaeological remains and linguistic evidence for all the Tupi. It is very likely that a differentiation in pottery corresponds to each linguistic derivation, as happens between the Guarani and Tupinambá (Brochado 1984; Scatamacchia 1981, 1991), without losing the general features of what the PRONAPA archaeologists call “Tupiguarani” pottery.

Historical information, especially after the profound demographic and cultural changes that took place after the arrival of the Europeans, cannot determine the expansion routes clearly. Certainly, the European presence changed territoriality in the Amazon region,

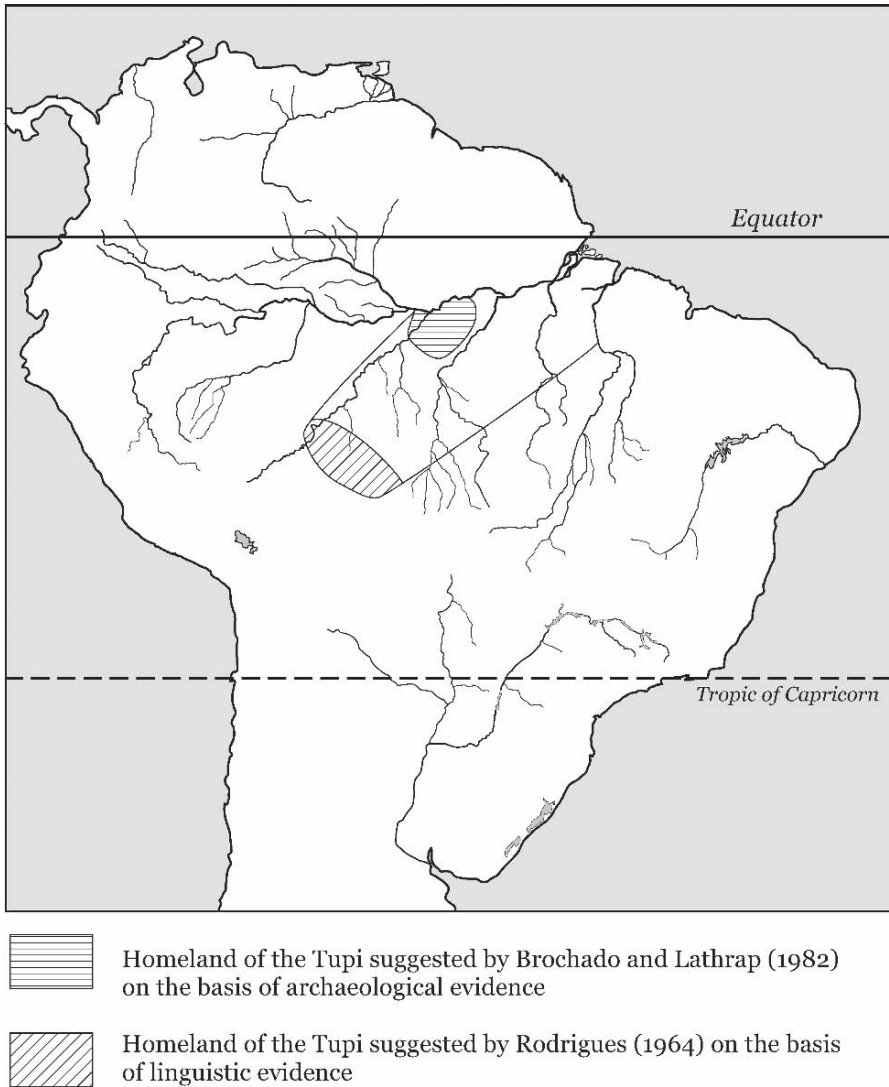


Figure 33.2. Hypothesized homelands of the Tupi. (Adapted from Noelli 1998: fig. 2 by Steven J. Holland)

influencing the mobility and spatial reallocation of several peoples, including the extinction of probable Tupi-speaking peoples (see Menéndez 1981–82; Gallois 1986; Porro 1992). Historic research as well as archaeological studies with a regional perspective may also come to demonstrate changes in the spatial distribution of prehistoric people, explaining expansion and, whenever applicable, collapse.

Of the 41 groups of Tupi people historically and archaeologically known, the most complete data are restricted to only 2 groups, with much unknown about the material inventory of the other prehistoric people. We can make statements about the Guaraní and Tupinambá based on empirical data, but no definitive evidence links other Tupi people to their prehistoric ancestors or determines the routes that took them to their historically known territories.

Of the current models, Brochado’s (1984) is the most complete. It is the only one that maps the regions where the cultural development of the Tupi was *unlikely* to occur. It thus delimits the most *likely* spaces in which expansion outside the Amazon region started. This model focuses on the Guarani and Tupinambá expansions, without encompassing the other 39 (of 41) Tupi peoples (Figure 33.3).

ACKNOWLEDGMENTS This chapter was originally published in 1998 as a paper under the title “The Tupi: explaining origin and expansions in terms of archaeology and of historical linguistics” in *Antiquity*, Volume 72, Number 277, pages: 648–663. Helaine Silverman and William H. Isbell thank Dr. Noelli and *Antiquity* (Emily Smyth, managing editor) for permitting us to reprint the article in the *HSAA*. Here it appears in edited and abbreviated form, approved by Dr. Noelli.

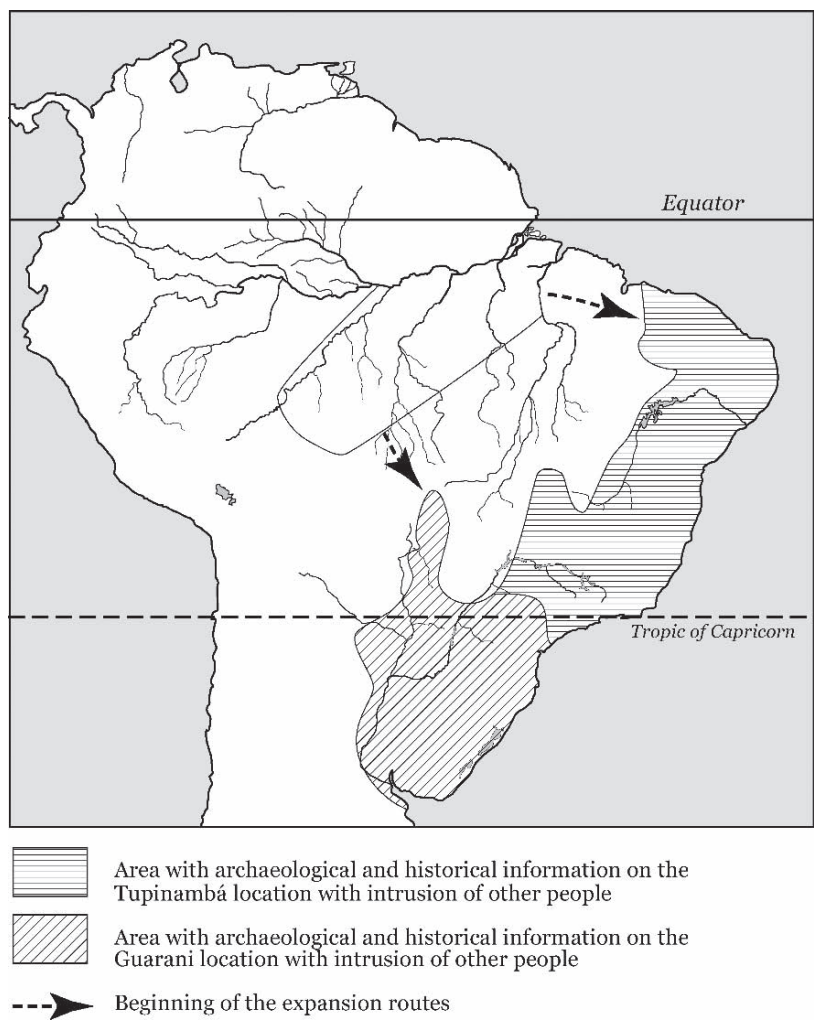


Figure 33.3. Beginnings of the routes of expansion and well-known areas of Tupinambá and Guarani. (Adapted from Noelli 1998: fig. 3 by Steven J. Holland)

NOTE

1. PRONAPA was organized and administered by Betty Meggers and Clifford Evans (see Barreto 1998: 576–578).

REFERENCES

- Balée, William, 1994, *Footprints in the Forest: Ka'apor Ethnobotany. The Historical Ecology of Plant Utilization by an Amazonian People*. Columbia University Press, New York.
- Barreto, Christiana, 1998, Brazilian archaeology from a Brazilian perspective. *Antiquity* 72: 573–81.
- Brochado, Jose P., 1973, Migraciones que difundieron la tradición alfarera Tupiguarani. *Relaciones* 7: 7–39. Buenos Aires.
- _____, 1984, An Ecological Model of the Spread of Pottery and Agriculture into Eastern South America. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- _____, 1989, A expansão dos tupi e da cerâmica de tradição policrôma amazônica. *Dédalo* 27:65–82. São Paulo.
- _____, et al., 1969, *Arqueologia Brasileira em 1968*. Museu Paraense Emílio Goeldi, Belém.
- _____, and Donald W. Lathrap, 1982, Chronologies in the New World: Amazonia. Unpublished manuscript. On file at the Department of Anthropology, University of Illinois at Urbana-Champaign. Illinois. [Revised by authors in 1984].
- _____, and Francisco Silva Noelli, n.d., Relações entre as cerâmicas Marajoara e Tupinambá. Unpublished manuscript.
- Gallois, Dominique T., 1986, *Migração, Guerra e Comércio: Os Waiapi na Guiana*. FFLCH-USP, São Paulo.
- Jensen, Cheryl J., 1989, *O Desenvolvimento Histórico de Língua Wayampi*. Editora de UNICAMP, Campinas.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Thames and Hudson, London.
- Lemle, Miriam, 1971, Internal classification of the Tupi-guarani linguistic family. In *Tupi Studies, I*, edited by David Bendor-Samuel, pp. 107–129. Summer Institute of Linguistics, Norman, OK.
- Meggers, Betty J., 1963, Cultural development in Latin America: an interpretative overview. in *Aboriginal Cultural Development in Latin America*, edited by Betty J. Meggers and Clifford Evans, pp. 131–145. Smithsonian Institution Press, Washington, D.C.
- _____, 1972, *Prehistoric America*. Aldine, Chicago.
- _____, 1975, Application of the biological model of diversification of cultural distributions in tropical lowland South America. *Biotropica* 7: 141–161.
- _____, Fluctuación vegetal y adaptación cultural prehistórica en Amazonia: algunas correlaciones tentativas. *Relaciones* (N.S.) 10: 11–26. Buenos Aires.
- _____, 1982, Archaeological and ethnographic evidence compatible with the model of forest fragmentation. In *Biological Diversification in the Tropics*, edited by G. T. Prance, pp. 483–496. Columbia University Press, New York.
- _____, and Clifford Evans, 1973, A reconstrução da pré-história amazônica: algumas considerações teóricas. *O Museu Goeldi no Ano de Sesquicentenário. Publicações Avulsas* 20: 51–69. Belem.
- _____, and Clifford Evans, 1978, Lowland South America and the Antilles. In *Ancient Native Americans*, edited by Justin D. Jennings, pp. 543–591. W. H. Freeman, San Francisco.
- Melia, Bartomeu, 1986, El “modo de ser” Guaraní en la primera documentación jesuítica (1594–1639). In *El Guaraní Conquistado y Reducido*, edited by Bartomeu Melia, pp. 93–116. CEAUC, Asunción.
- Menéndez, Miguel, 1981–82, Uma contribuição para etno-história da área Tapajós-Madeira. *Revista do Museu Paulista* (NS) 28: 289–388. São Paulo.
- Métraux, Alfred, 1927, Migrations historiques des Tupi-guarani. *Journal de la Société de Américanistes* (NS) 19: 1–45.
- Noelli, Francisco Silva, 1993a, Por uma revisão da “busca da terra sem mal” dos Tupi. *Boletim da ABA* 20 (Dezembro):16. Florianópolis.
- _____, 1993b, Sem Tekohá não há Tekó (em busca de um modelo etnoarqueológico da subsistência e da aldeia Guaraní aplicado a uma área de domínio no delta do Jacuí-RS). M.A. thesis. IFCH-PUCRS, Porto Alegre.
- _____, 1998, The Tupi: explaining origin and expansions in terms of archaeology and historical linguistics. *Antiquity* 72: 648–63.
- Peixoto, Jose Luis, 1995, A ocupação do Tupiguarani na borda oeste do pantanal Sul-matogrossense: maciço do Urucu. M.A. thesis. IFCH-PUCRS, Porto Alegre.

- Porro, Antônio, 1992, *As Crônicas do Rio Amazonas: Notas Ethohistóricas Sobre as Antigas Populações Indígenas da Amazônia*. Vozes, Petrópolis.
- PRONAPA (Programa Nacional de Pesquisas Arqueológicas), 1970, Brazilian archaeology in 1968: an interim report on the National Program of Archaeology Research-PRONAPA. *American Antiquity* 35 (1): 1–23.
- Rodrigues, Aryon Dall'Igna, 1945, Fonética histórica Tupi-guarani: diferenças fonéticas entre o Tupi e o Guarani. *Arquivos do Museu Paranaense* 4: 333–354. Curitiba.
- _____, 1958, Classification of Tupi-Guarani. *International Journal of American Linguistics* 24: 231–234.
- _____, 1964, A classificação do Tronco linguístico Tupi. *Revista de Antropologia* 12: 99–104. São Paulo.
- _____, 1984–85, Relações internas na Família linguística Tupi-guarani. *Revista de Antropologia* 27–28:33–53. São Paulo.
- _____, 1985, Evidences for Tupi-Carib relationships. In *South American Indian Languages: Retrospect and Prospect*, edited by Harriet Klein and Louisa Stark, pp. 371–404. University of Texas Press, Austin.
- Roosevelt, Anna C., 1991a, Determinismo ecológico na interpretação do desenvolvimento social indígena da Amazônia. In *Origens, Adaptações e Diversidade Biológica do Homen Nativo de Amazônia*, edited by Walter A. Neves, pp. 103–141. SCT/CNPq/MPEG, Belém.
- _____, 1991b, *Moundbuilders of the Amazon*. Academic Press, New York.
- Scatamacchia, Maria Cristina Mineiro, 1981, Tentativa de Caracterização da Tradição Tupiguarani. M.A. thesis. FFLCH-USP, São Paulo.
- _____, 1991, Tradição Policrôma no Leste Da América do Sul Evidenciada pela Ocupação Guarani e Tupinambá: Fontes Arqueológicas e Etno-históricas. Ph.D. dissertation. FFLCH-USP, São Paulo.
- Urban, Greg, 1992, A história da cultura brasileira segundo as línguas nativas. In *História dos Índios no Brasil*, edited by Manuela Carneiro da Cunha, pp. 87–102. FAPESP/SMC/Cia das Letras, São Paulo.
- VLB, 1952, *Vocabulário no Língua Brasileira*. 2nd edition, edited by Carlos Drumond. Boletim 137, Etnografia e Tupi-guarani 23-FFCL-USP. São Paulo.

Life on the Move: Bioarchaeological Contributions to the Study of Migration and Diaspora Communities in the Andes

TIFFINY A. TUNG

INTRODUCTION

The study of ancient human migration has long been a notable aspect of anthropological research as scholars investigate why people opt, or are forced to move from their homeland to a new locale. Explanations vary widely, but according to Arutinov (2002: 89) the underlying motivation for most migrations, “including the most ancient ones, are...things are not going well for a people in their own homeland,” leading people to seek a better life in another place. Similarly, individuals and families may be drawn to an urban center in pursuit of new economic, social, political, or other kinds of opportunities. The potential push and pull factors for migration highlight a key path of inquiry worth exploring in the archaeological record. Why are people moved, or why do they opt to leave a familiar landscape filled with known kith and kin to venture to an unknown locale, often filled with strangers and customs different from one’s own? And how can researchers detect this movement in the archaeological record?

Archaeologists have made tremendous contributions in identifying ancient human migration patterns and diaspora communities through analyses of artifacts and architecture (Goldstein 2005; Janusek 2004; Owen 2005; Rattray 1990; Spence 1992). Bioarchaeological approaches can now contribute to these studies, providing additional lines of data to examine residential mobility. For example, biodistance analysis of skeletal and dental traits can document the biological relatedness among individuals within and between sites and regions (Blom 1999; Sutter 2000; Varela and Cocilovo 2000; Verano and DeNiro 1993).

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

And studies of cranial modifications (Blom 2005; Hoshower et al. 1995; Torres-Rouff 2002) and bioarchaeological chemistry (Knudson et al. 2004; Price et al. 2001; Price et al. 1998; Price et al. 2000) can sometimes detect enclaves of people from distant lands. In this way, archaeologists are beginning to identify colonizing communities, migrants to urban centers, displaced people, and perhaps even sojourners.

In this chapter, I discuss ways in which non-local (non-natal) individuals can be identified using data on skeletal morphology and the chemical composition of bones and teeth, and I discuss how they can be used to address questions about migration and diaspora communities in the ancient Andes. Archaeologists working in the Andes have examined the Inca policy of relocating groups of people and creating diaspora communities in the process (Bauer and Stanish 2001; D'Altroy 2002; Julien 2000) and have provided a thorough overview of how diasporas relate to ayllus and the vertical archipelago systems (Goldstein 2005). My focus is on an earlier time period: the Middle Horizon (AD 500–1000). I summarize bioarchaeological studies that document diaspora communities associated with the Tiwanaku and Wari states (Figure 34.1).

MIGRATION IN THE ANCIENT ANDES

Spanish chroniclers documented Inca resettlement policies that effectively created diaspora communities in the pre-Hispanic Andes. Communities that were forcibly relocated were called *mitmaqkuna*; they were ethnically distinct groups in the places to which they were moved. The Inca ruler, Pachacuti, was the first to resettle potentially rebellious communities that lived in defensible locales (Sarmiento de Gamboa 1999 [1572]). In time, the Inca state more systematically relocated some ethnic groups to distant zones (under Huayna Capac, see D'Altroy 2002: 248), often placing these *mitmaqkuna* near those who spoke a different language, effectively preventing them from forming well organized rebellions against the state (Rowe 1946: 269). In other cases, the relocated population might be loyal to the Inca, so transplanting them as monitors of sorts prevented other subject (conquered) peoples from allying against the Inca (Rowe 1946: 269).

Additionally, subject and resettled communities constituted part of a vertical archipelago system in the Inca Empire, enabling the state (and ayllus) to control the production and distribution of foodstuffs and other goods (Murra 1972). These Inca state policies aimed at limiting rebellions and managing the deployment of resources through forced or encouraged movement of peoples have been discussed by other scholars (Bauer and Stanish 2001; D'Altroy 2002; Julien 2000), yet antecedents to these kinds of state policies remain less explored (but see Goldstein 2005), particularly from a bioarchaeological perspective.

The Middle Horizon states of Tiwanaku and Wari (see Chapter 37 in this volume), which originated in the southern and central highlands (Isbell 1985; Kolata 1993a; Schreiber 1992), each expanded to incorporate distant geographical zones. Tiwanaku and Wari may have originated the first state-sponsored or state-influenced migration and relocation policies in the Andes, colonizing distant zones and creating urban centers to which foreigners migrated. Identifying diaspora communities in the Middle Horizon illuminates the role that the earliest states played in the engineering of human migration. This is not to imply that ancient states dictated all aspects of population movement and settlement. Nevertheless, state policies and structures certainly would have profoundly affected where people lived, journeyed, died, and were eventually buried. Documenting these various phases through



Figure 34.1. Map of the south Central Andes showing key sites mentioned in the text and the terrain of the area discussed. (Drawn by Steve A. Wernke)

combined archaeological, osteological, and archaeological chemical analyses can illuminate how state and community structures may have affected an individual's life course.

BIOARCHAEOLOGICAL STUDIES OF TIWANAKU STATE COLONIZATION

A series of archaeological and bioanthropological studies reveal possible Tiwanaku colonization in the Atacama desert of northern Chile where Tiwanaku goods have been documented at several of those sites, leading archaeologists to posit competing hypotheses regarding the nature of Tiwanaku influence and expansion. Some scholars have suggested that individuals from Tiwanaku were settling in foreign zones (Berenguer and Dauelsberg Hahmann 1989; Kolata 1992, 1993a, b; Ponce Sangines 1972; Rodman 1992), while others have proposed that the Tiwanaku established colonies consisting of various ethnic groups (Mujica et al. 1983), akin to the "vertical archipelagos" proposed by Murra (1972). A third group of scholars has hypothesized that Tiwanaku goods and ideology were spread through exchange (Torres and Conklin 1995), trade and llama caravans (Dillehay and Núñez 1988), or commercial missionaries (Browman 1978) (and see also the social field interpretation by Stovel in Chapter 49 of this volume). The cases described below show how a series of studies over several decades have come together to address some of these debates.

Some researchers have suggested that Tiwanaku satellite communities may have been present in the San Pedro de Atacama desert of northern Chile during the Middle Horizon (Berenguer and Dauelsberg Hahmann 1989; Kolata 1993a), and analysis of textiles from the Middle Horizon cemetery of Coyo Oriental in the Atacama seemed to support this: local textile styles were abruptly altered, most likely by foreign individuals from the Bolivian altiplano who may have been physically present in the Atacama (Rodman 1992). Additionally, a biodistance study analyzing cranio-facial metrics of skeletal samples from the Atacama region noted a significant increase in morphological diversity from pre-Tiwanaku to Tiwanaku times, leading the authors to suggest an infusion of new genetic material from high plateau peoples, arguing that they would have been the carriers of Tiwanaku culture (Varela and Cocilovo 2000: 129,131). However, while increased heterogeneity of cranio-facial metrics was observed, those data do not locate from where the new genetic variability came. Additionally, the cranio-facial metrics used by the researchers can vary based on masticatory function, not underlying genes (see Larsen 1997); thus, the measured differences may be more related to behavior (diet, or use of the mouth as a tool), not genetic origin.

Building on these earlier studies, Torres-Rouff (2002) investigated this problem through an examination of Atacama cranial modification styles from pre-Tiwanaku to Tiwanaku periods, and hypothesized the following: if Tiwanaku foreigners were present in San Pedro de Atacama, then Tiwanaku era local cranial modification styles should differ from the pre-Tiwanaku sample. Her study documented a high frequency of tabular erect and tabular oblique cranial modification forms in the pre-Tiwanaku Atacama groups [Note 1]; thus a shift away from that pattern might suggest a Tiwanaku colonizing presence. Although there was a statistically significant difference in the frequency of moderately shaped annular forms between the pre-Tiwanaku and Tiwanaku sites, there were no "strong annular forms of the altiplano" present at either Atacama site, nor was there a statistically significant change in the frequency of individuals with cranial modification (Torres-Rouff 2002) [Note 2]. This led Torres-Rouff (2002) to conclude that there were no Tiwanaku colonists in the Atacama region during the Middle Horizon.

To examine this problem further, an analysis of strontium isotope ratios from dentition from Atacama burials was recently undertaken by Knudson (2004). Strontium isotope ratios from dental enamel reveal the geological zone of an individual's childhood diet because the chemical compositions of foods are absorbed by enamel as dentition is forming (Grupe et al. 1997; Price et al. 2002; Price et al. 2000). By extension, if local foods are consumed, then the strontium isotope ratio in teeth can serve as a proxy for establishing the geological zone(s) where an individual may have lived during childhood. Thus, if individuals interred in the Atacama exhibited dental strontium isotope ratios different from the local strontium isotope value, then those data would indicate that they consumed large quantities of food grown in another geological zone; this would suggest that they likely spent their childhood in a different locale. In contrast, if strontium isotope values matched that of the local region, then it is likely that they were native to the area (or at least consumed foods from the local geological zone).

The interpretation put forward by Torres-Rouff (2002) was supported by data from Knudson's (2004) isotope study; none of the dental enamel samples from Middle Horizon Atacama burials show strontium isotope ratios expected for Tiwanaku natives (i.e., from the southeastern Lake Titicaca basin). Specifically, 35 individuals interred at three Middle Horizon Atacama sites (Coyo-3, Coyo Oriental, and Solcor 3) were sampled, and while four of the 35 exhibited non-local dental strontium isotope values, none was within the range expected for a person who spent their developmental years in the Tiwanaku heartland (Knudson 2004) [Note 3]. Granted, a sample of 35 represents only 0.6% of the 632 Atacama burials, so Tiwanaku migrants may yet be identified. However, the majority of the dental samples are from those interred with Tiwanaku artifacts who may be the ones most likely to express Tiwanaku strontium isotope signatures (see Knudson 2004). Among the four Atacama burials with non-local strontium isotope values, two expressed signatures that matched expected values for the upper Osmore drainage (or another geological zone like the upper Osmore), suggesting that individuals from those Tiwanaku-affiliated sites may have migrated south to Atacama (Knudson 2004).

Immigrants (and Sojourners) to State Centers

As urban sites develop, people from surrounding and distant regions may migrate there, building its status as an important city while also creating a cosmopolitan center in which different ethnic groups interact. The city of Teotihuacán in central highland Mexico is a case in point, where studies of ceramics have identified non-local ethnic barrios (Rattray 1990; Spence 1992), and analyses of strontium isotope ratios from human tooth and bone pairs have documented foreign-born persons who migrated to and settled at this center (Price et al. 2000). In the Andes, the development of the urban center of Tiwanaku in the Lake Titicaca basin also appears to have been a magnet for immigrants; artifactual and osteological data indicate that peoples from diverse zones migrated to this highland center. Based on the diversity of ceramic styles present in distinct areas of the site—a pattern that holds over time—Janusek (2004: 159–164) proposed that people of different regions may have emigrated to the center, while maintaining close ties to their homeland for many generations. This interpretation has been supported by bioarchaeological analyses, in which two major types of cranial modification have been documented: the annular form and the fronto-occipital form (Blom 1999; Blom 2005). Because this type of body modification is likely to express ethnic identity or regional affiliation and must occur in infancy when the skull is malleable, modified head shape can serve as a proxy measure of one's natal

community (Blom 1999; Blom 2005; Janusek 2004). Thus, the two forms of cranial modification at Tiwanaku suggest that different ethnic groups immigrated to this center (Blom 1999; Blom 2005), an interpretation that coincides with artifactual data from the same site (Janusek 2004).

Questions regarding in-migration to the urban site of Conchopata in the Wari heartland have also been addressed through analyses of grave good associations, cranial modification, and strontium isotope ratios (Tung 2003; Tung and Cook 2006; Tung and Knudson n.d.). The bodies of 46 individuals and associated grave goods from seven multi-occupant tombs at Conchopata were examined, revealing that pre-Wari individuals seemed to be identifiable by association with local Huarpa goods and Wari-era persons by association with local Huamanga ceramics (Tung and Cook 2006). Moreover, none exhibited cranial modification such as the tabular oblique or tabular erect styles (also known as fronto-occipital modification) (Tung 2003), which are more common in coastal populations (Blom 1999; Kellner 2002; Torres-Rouff 2002; Tung 2003) [Note 4]. Thus, the artifactual and osteological data suggest that non-locals were absent in the core mortuary area of the site. To further test this, strontium isotope ratios from six individuals (one male, four females, and one newborn infant, which by extension provided a strontium isotope value for its mother) were examined to ascertain if they consumed local or non-local foods: a proxy measure of local or foreign status (Tung 2003; Tung and Knudson n.d.). These analyses showed that all had similar strontium isotope ratios in their teeth and bones, and that these values matched the local strontium value, which was based on small fauna that consumed locally grown vegetation (Tung 2003; Tung and Knudson n.d.). These data indicate that those six individuals interred with local goods in Conchopata tombs had spent their childhood and adulthood in the region of the Wari heartland (their strontium isotope ratios [$^{87}\text{Sr}/^{86}\text{Sr}$] ranged from 0.7055 to 0.7061). The combined artifactual, osteological, and strontium isotope data suggest that few, if any, of those buried at Conchopata were immigrants from distant zones. Thus, unlike Tiwanaku, current data suggest an absence of immigrants at the urban center of Conchopata, yet it remains unknown if the capital site of Huari was more similar in this regard to its neighbor, Conchopata, or to the distant center of Tiwanaku.

GENDER-BASED DIASPORAS: FEMALE VS. MALE EXOGAMY

Combined bioarchaeological and archaeological studies also have the potential to inquire about gender-based diasporas, particularly as they relate to issues of female versus male exogamy. That is, if sex-based differences in migration are detected through biodistance and stable isotope analyses and cranial modification studies, then it may be possible to reconstruct community organization as it relates to post-marital residence rules. For example, in the study of cranial modification among Atacameños, Torres-Rouff (2002) noted an increase in moderate annular forms among females from pre-Tiwanaku to Tiwanaku times, perhaps resulting from virilocal exogamy, in which foreign-born females were incorporated into the local group (Torres-Rouff 2002). This seemed to coincide with facial morphology data, showing differences between the sexes at the same Atacama sites. However, given that both time periods showed “foreign-looking” females (Costa and Llagos-Tera 1994), it is possible that the male-female morphological differences could have been more related to sexual dimorphism or a long historical tradition of virilocal exogamy with non-Atacama groups (who did not

necessarily come from Tiwanaku). Additionally, the differences in facial morphology could have been related to masticatory behavior, not genes (see comment above), so it is unclear if non-local females migrated into the Atacama group. Moreover, among the four Atacama burials that exhibited non-local strontium isotope ratios, all were male (Knudson et al. 2004); no females exhibited non-local values, suggesting that no foreign-born females were present among those sampled from the Atacama cemeteries. Based on my analysis of Knudson's (2004) detailed strontium isotope database of Atacama samples (see Appendix A in Knudson 2004), there was no statistically significant difference in the frequency of foreign males ($4/23 = 17\%$) relative to foreign females ($0/11 = 0\%$) (Fisher's exact test, $p = 0.191$; $df = 1$; $N = 34$) ($N = 34$ and not 35 because one individual was unsexed). Thus, current data are more consistent with local endogamy than with female or male exogamy. While much remains to be done, methods are in place to examine these kinds of nuanced questions.

Bioarchaeological data from Conchopata also provide preliminary insights into similar issues, keeping in mind that current datasets are too small to formulate conclusions. As recounted above, all four females from Conchopata (five females if the infant's strontium signature, which reflects the mother's signature, is included) exhibited local strontium isotope ratios in their teeth and bones (Tung 2003; Tung and Knudson n.d.). This suggests that women were born locally, spending their entire lives there until buried at the site. To date, no strontium isotope or cranial modification data reveal females from distant zones residing within the Conchopata community (Tung 2003), suggesting endogamy for the site or local area [Note 5].

CONCLUSION

These studies have shown that the union of archaeological and bioarchaeological data are particularly well suited to addressing questions regarding diaspora communities and patterns of migration. Moreover, these kinds of studies serve to address broader anthropological themes regarding ancient statecraft and the influence of states on local communities. For example, the absence of Tiwanaku colonizers in the San Pedro de Atacama desert has shown that a colonizing presence was not necessary to create and maintain strong ties between the two regions. Studies of migration and diaspora communities can also document the role of immigrants in the process of urbanization, as foreign people move to new centers; this appears to have occurred at the site of Tiwanaku, but not at the Wari heartland site of Conchopata. And while Conchopata is only the secondary capital in the Wari core, these apparently different paths to urbanization among two contemporaneous states provide insights into how each may have developed and created or fomented an environment that brought diverse peoples together. Future studies at the Wari capital site of Huari may reveal additional distinctions or identify more parallels between Tiwanaku and Wari. Questions on migration also have become more nuanced with inquiries that address such things as marriage rules, which should eventually produce a richly textured view of ancient lifeways and community and ayllu organization in the Andes. Taken together, the combined methodologies and complementary scales of inquiry are coalescing to provide insightful perspectives of life "on the move."

ACKNOWLEDGMENTS I thank Steve Wernke and Kelly Knudson for comments on sections of this chapter.

NOTES

1. There are slight differences in the tabular erect and tabular oblique styles, but they are nonetheless distinct from the annular form of modification. In the tabular erect style, the occipital bone is flattened at a 90-degree angle, so the back of the head is straight up and down, whereas the tabular oblique style displays an occipital bone that is angled up.
2. Tiwanaku cranial modification forms are not solely characterized by annular modification; however, a higher frequency of that style in Atacama during the Tiwanaku era would suggest a shift away from local form, perhaps resulting from highland colonizers.
3. Knudson (2004) identifies 12 non-local strontium isotope values in the Atacama samples, but concludes that only four are “clearly non-local.” The eight individuals that exhibit strontium values slightly outside of the local range, but end up being interpreted as local are from Solcar 3 (see Knudson 2004: 133–135).
4. Although central and southern Andean coastal groups exhibit tabular modification nearly exclusively (Blom 1999; Kellner 2002; Torres-Rouff 2002; Tung 2003), the highland urban center of Tiwanaku has individuals with both tabular and annular forms (Blom 1999). However, the pattern of mixed cranial deformation styles at Tiwanaku does not mean that cranial modification styles are randomly distributed throughout the Andes; rather, the combined studies demonstrate that tabular forms dominate near the coast, while a variety of styles are present at Tiwanaku, suggesting the presence of a cosmopolitan center with people from a variety of locales (Blom 1999). Thus, the tabular form is a fairly reliable indicator of coastal origin.
5. At Conchopata here is significantly more data on the mortuary treatment and health status of females relative to males because there are statistically significantly more females (62%) than males (38%) have been found, relative to an even sex distribution ($p=0.0176$; $N=81$) (Tung 2003).

REFERENCES

- Arutinin, S. A., 2002, The diaspora as a process. *Anthropology and Archaeology of Eurasia* 41: 89–96.
- Bauer, Brian S. and Charles Stanish, 2001, *Ritual and Pilgrimage in the Ancient Andes: The Islands of the Sun and the Moon*. University of Texas Press, Austin.
- Berenguer, José and Percy Dauelsberg Hahmann, 1989, El norte grande en la órbita de Tiwanaku. In *Culturas de Chile: Prehistoria Desde Sus Orígenes Hasta los Albores de la Conquista*, edited by Jorge L. Hidalgo, Virgilio F. Schiappacasse, Hans F. Niemeyer, Carlos Aldunate del Solar, and Ivan R. Solimano, pp. 221–226. Editorial Andrés Bello, Santiago.
- Blom, Deborah E., 1999, Tiwanaku Regional Interaction and Social Identity: A Bioarchaeological Approach. Ph.D. dissertation. Department of Anthropology, University of Chicago.
- , 2005, Embodying borders: human body modification and diversity in Tiwanaku society. *Journal of Anthropological Archaeology* 24:1–24.
- Browman, David L., 1978, Toward the development of the Tiahuanaco (Tiwanaku) state. In *Advances in Andean Archaeology*, edited by David L. Browman, pp. 327–349. Mouton, The Hague.
- Costa, María Antonietta and Agustín Llagostera, 1994, Coyo-3: Momentos finales del período medio en San Pedro de Atacama. *Estudios Atacameños* 11:73–108.
- D’Altroy, Terence N., 2002, *The Incas*. Blackwell, Malden, MA.
- Dillehay, Tom D. and Lautaro Núñez, 1988, Camelids, caravans, and complex societies in the south-central Andes. In *Recent Studies in Pre-Columbian Archaeology*, edited by Nicholas J. Saunders and Oliver de Montmollin, pp. 603–634. Oxford.
- Goldstein, Paul, 2005, *Andean Diaspora. The Tiwanaku Colonies and the Origins of South American Empire*. University Press of Florida, Gainesville.
- Grupe, Gisela, T. Douglas Price, Peter Schröter, Frank Söllner, Clark Johnson, and Brian L. Beard, 1997, Mobility of Bell Beaker people revealed by strontium isotope ratios of tooth and bone: a study of southern Bavarian skeletal remains. *Applied Geochemistry* 12: 517–525.
- Hoshower, Lisa M., Paul S. Goldstein, Ann D. Webster, and Jane E. Buikstra, 1995, Artificial cranial deformation at the Omo M10 site: a Tiwanaku complex from the Moquegua Valley, Peru. *Latin American Antiquity* 6: 145–164.
- Isbell, William H., 1985, Origen del estado en el valle de Ayacucho. *Revista Andina* 3: 57–106.
- Janusek, John W., 2004, *Identity and Power in the Ancient Andes. Tiwanaku Cities Through Time*. Routledge, New York.
- Julien, Catherine, 2000, *Reading Inca History*. University of Iowa Press, Iowa City.

- Kellner, Corina, 2002, Coping with Environmental and Social Challenges in Prehistoric Peru: Bioarchaeological Analyses of Nasca Populations. Ph.D. dissertation. Department of Anthropology, University of California, Santa Barbara.
- Knudson, Kelly J., 2004, Tiwanaku Residential Mobility in the South Central Andes: Identifying Archaeological Human Migration through Strontium Isotope Analysis. Ph.D. dissertation. Department of Anthropology, University of Wisconsin, Madison.
- , T. Douglas Price, Jane E. Buikstra, and Deborah E. Blom, 2004, The use of strontium isotope analysis to investigate Tiwanaku migration and mortuary ritual in Bolivia and Peru. *Archaeometry* 4: 5–18.
- Kolata, Alan L., 1992, Economy, ideology, and imperialism in the south-central Andes. In *Ideology and Pre-Columbian Civilizations*, pp. 65–86. School of American Research, Santa Fe.
- , 1993a, *The Tiwanaku: Portrait of an Andean Civilization*. Blackwell, Cambridge, MA.
- , 1993b, Understanding Tiwanaku: conquest, colonization, and clientage in the south central Andes. In *Latin American Horizons*, edited by Don S. Rice, pp. 193–224. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Larsen, Clark Spencer, 1997, *Bioarchaeology: Interpreting Behavior from the Human Skeleton*. Cambridge University Press, Cambridge and New York.
- Mujica, Elias J., Mario A. Rivera, and Thomas F. Lynch, 1983, Proyecto de estudio sobre la complementariedad economica Tiwanaku en los valles occidentales del centro-sur andino. *Chungara* 11: 85–109.
- Murra, John V., 1972, El “control vertical” de un máximo de pisos ecológicos en la economía de las sociedades andinas. In *Visita de la Provincia de Leon de Huanuco en 1562*, edited by John V. Murra, pp. 429–476. Universidad Nacional Hermilio Valdizan, Huanuco.
- Owen, Bruce, 2005, Distant colonies and explosive collapse: the two stages of the Tiwanaku diaspora in the Osmore drainage. *Latin American Antiquity* 16: 45–80.
- Ponce Sangines, Carlos, 1972, *Tiwanaku: Espacio, Tiempo y Cultura. Ensayo de Sintesis Arqueológica*. Publicación No. 30. Academia Nacional de Ciencias de Bolivia, La Paz.
- Price, T. Douglas, R. Alexander Bentley, Jens Luning, Detlef Gronenborn, and Joachim Wahl, 2001, Prehistoric human migration in the Linearbandkeramik of central Europe. *Antiquity* 75: 593–603.
- , James Burton, and R. Alexander Bentley, 2002, The characterization of biologically available strontium isotope ratios for the study of prehistoric migration. *Archaeometry* 44: 117–135.
- , Gisela Grupe, and Peter Schroter, 1998, Migration in the Bell Beaker period of central Europe. *Antiquity* 72: 405–411.
- , Linda Manzanilla, and William D. Middleton, 2000, Immigration and the ancient city of Teotihuacan in Mexico: a study using strontium isotope ratios in human bone and teeth. *Journal of Archaeological Science* 27: 903–913.
- Rattray, Evelyn C., 1990, The identification of ethnic affiliation at the Merchant’s Barrio, Teotihuacan. In *Ethnoarqueologia Coloquio Bosch-Gimpera*, edited by Yoko Sugiura Y. and Mari Carmen Serra P., pp. 113–138. Universidad Nacional Autónoma de México, Mexico City.
- Rodman, Amy Oakland, 1992, Textiles and ethnicity: Tiwanaku in San Pedro de Atacama, north Chile. *Latin American Antiquity* 3: 316–340.
- Rowe, John H., 1946, Inca culture at the time of the Spanish conquest. In *Handbook of South American Indians*, edited by Julian H. Steward. Bulletin 143, Volume 2, pp. 183–330. Bureau of American Ethnology, Washington, D.C.
- Sarmiento de Gamboa, Pedro, 1999 [1572], *History of the Incas*. Dover, New York.
- Schreiber, Katharina J., 1992, *Wari Imperialism in Middle Horizon Peru*. Anthropological Papers, No. 87. Museum of Anthropology, University of Michigan, Ann Arbor.
- Spence, Michael W., 1992, Tlailotlacan, a Zapotec enclave in Teotihuacan. In *Art, Ideology, and the City of Teotihuacan*, edited by Janet Berlo, pp. 59–88. Dumbarton Oaks Research Library, Washington, D.C.
- Sutter, Richard C., 2000, Prehistoric genetic and culture change: a bioarchaeological search for pre-Inka altiplano colonies in the coastal valleys of Moquegua, Peru, and Azapa, Chile. *Latin American Antiquity* 11: 43–70.
- Torres, Constantino M. and William Conklin, 1995, Exploring the San Pedro de Atacama/ Tiwanaku relationship. In *Andean Art: Visual Expression and Its Relation to Andean Beliefs and Values*, edited by Penny Dransart, pp. 78–108. Avebury, Hampshire.
- Torres-Rouff, Christina, 2002, Cranial vault modification and ethnicity in Middle Horizon San Pedro de Atacama, Chile. *Current Anthropology* 43:163–171.

- Tung, Tiffany A., 2003, A Bioarchaeological Perspective on Wari Imperialism in the Andes of Peru: A View from Heartland and Hinterland Skeletal Populations. Ph.D. dissertation. Department of Anthropology, University of North Carolina, Chapel Hill.
- and Anita G. Cook, 2006, Intermediate elite agency in the Wari empire: the bioarchaeological and mortuary evidence. In *Intermediate Elites in Pre-Columbian States and Empires*, edited by Christina Elson and R. Alan Covey, pp. 68–93. University of Arizona Press, Tuscon.
- and Kelly J. Knudson, n.d., Local ancestors or foreign enemies?: The geographical origin of trophy heads from the Wari site of Conchopata. Manuscript in review.
- Varela, Hector Hugo and José Alberto Cocilovo, 2000, Structure of the prehistoric population of San Pedro de Atacama. *Current Anthropology* 41: 125–132.
- Verano, John W. and Michael DeNiro, J., 1993, Locals or foreigners? Morphological, biometric, and isotopic approaches to the question of group affinity in human skeletal remains recovered from unusual archaeological contexts. In *Investigations of Ancient Human Tissue: Chemical Analyses in Anthropology*, edited by Mary Sandford, K., pp. 361–386. Gordon and Breach, New York.

Chavín de Huántar and Its Sphere of Influence

RICHARD L. BURGER

INTRODUCTION

Chavín de Huántar, an archaeological site in the Peruvian north highlands, has long been recognized as one of the most important centers of the pre-Hispanic Andes. This understanding predates the beginning of scientific archaeology in Peru. In 1553 Pedro Cieza de Leon, a Spanish soldier and keenly observant chronicler, reported that the massive constructions at Chavín de Huántar had been built by a race of giants long before the Inca conquest and that their portraits in stone could still be seen at the site. When the Archbishop of Lima visited the site in 1593 he described Chavín as an ancient fortress. In 1616 the writer Vasquez de Espinoza offered a more astute assessment: “It was a huaca or sanctuary, one of the most famous of the gentiles, like Rome or Jerusalem among us; a place where the Indians came to make offerings and sacrifices, because the demon in this place declared many oracles to them, and so they attended from throughout the kingdom” (Vasquez de Espinoza 1948 [1616]: 458).

The reputation of this long-abandoned archaeological complex as a center of great spiritual power and oracular authority was reiterated in 1619 by a Jesuit mission to Cajatambo when the local residents described Chavín de Huántar’s main construction as “a building that is very feared and greatly venerated and they call it the house of the huacas ... and they [the huacas] spoke and answered the men [who were] their children, and [they spoke] to the heads of lineages that exist today among the Indians of this land” (Duviols 1973).

Half a century later, in 1657, the Spanish sent a representative to investigate rumors of idolatry at Chavín de Huántar and in “the vast interior passageways and labyrinths” he encountered an old priest burning black maize kernels and masticated coca leaves while a spider walked along the edge of the heated brazier; the movements of the spider served as the basis for divination (Duviols 1973). Unauthorized indigenous religious activities

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

continued at Chavín de Huántar well into the mid-twentieth century until they were finally halted by security measures linked to the establishment of the archaeological site as an officially protected monument.

Despite its remote location, Chavín de Huántar was a frequent destination for foreign and Peruvian travelers during the nineteenth century, such as the Peruvian Eduardo Rivero y Ustariz and the Italian Antonio Raimondi. With French funding the Austrian Charles Wiener visited the site in 1880 and published one of the earliest and least accurate drawings of Chavín de Huántar's principal cult object, the Lanzón. Another important sculpture, the Estela Raimondi, was transported from Chavín de Huántar to Lima in 1874 for display. In the capital the stone carving stimulated a debate about its antiquity and cultural affiliation among scholars and antiquarians, most of whom never made the journey to the highland center (Kauffmann Doig 1964). Ernst Middendorf, a German physician, visited Chavín de Huántar and identified it as the capital of an early empire that included sites in the Casma Valley such as Moxeke and Chankillo as well as other coastal and highland sites the highlands (Middendorf 1974, Vol. 2: 307–308, 312, 539–540).

Thus, even before the introduction of scientific archaeology in Peru, Chavín de Huántar was already well known as an important pre-Inca religious center with a distinctively non-Inca style of stone sculpture. Moreover, the idea that Chavín de Huántar's influence may have extended beyond local groups had already been proposed.

HISTORY OF SCIENTIFIC RESEARCH

Julio C. Tello, the father of Peruvian archaeology, devoted much of his career to establishing that Chavín de Huántar was the source from which Andean civilization spread to the northern, central and southern Peruvian highlands and coast, and far beyond to neighboring regions of Argentina, Bolivia and Ecuador (Tello 1934, 1942, 1943, 1960). While not all of his claims have been accepted, since Tello's time Chavín de Huántar has played a special role in the history of archaeological research in Peru. It has been considered not merely an important early center in the Central Andes but *the* important early center and its investigation has been viewed as a key to explaining cultural changes observed far from the site itself. In addition, the site and images from the sculpture that decorates it have come to serve as symbols of Peruvian national identity. As a consequence of its cultural importance and impressive remains UNESCO named Chavín de Huántar a World Heritage site in 1985.

Not surprisingly, many archaeologists have carried out investigations at Chavín de Huántar. The first scientific studies were initiated in 1919 by Tello as part of his "Archaeological Expedition of the San Marcos University to the Department of Ancash," and Tello returned repeatedly for additional explorations and excavations, most notably those of 1934 and 1940. As part of his work there, Tello cleared much of the monumental architecture at the site, only to have it buried by a massive landslide on January 17, 1945. Despite this setback, Tello succeeded in establishing the site of Chavín de Huántar as the best known and most important of early Peruvian centers, and his publications provided illustrations of the abundant stone sculpture and the incised dark monochrome ceramics recovered there. The 1939 excavations by the American archaeologist Wendell Bennett confirmed the validity of Tello's observations and conclusions, and focused international attention on the center and its stone sculpture (Bennett 1942, 1944). In the subsequent decades, excavations continued under the aegis of the resident archaeologist, Tello's student Marino Gonzáles.

In the 1960s, smaller projects were carried out by eminent archaeologists such as Cuzco archaeologist Manuel Chavez Ballon, Lima archaeologist Jorge Muelle, and U.S. archaeologist John Rowe (1962). The Archaeological Museum of the San Marcos National University initiated the first large-scale project at Chavín de Huántar in 1966 and, under the direction of Luis Lumbreras and Hernan Amat, this project carried out detailed and extensive studies of the public architecture and interior galleries (Lumbreras 1971, 1977, 1989, 1993). The massive earthquake of 1970 failed to stop this project, which continued in 1973 and 1974 under the direction of Rosa Fung Pineda (1975), another San Marcos National University archaeologist. I had the privilege of excavating at Chavín de Huántar in 1975 and 1976, but unlike most of the previous investigators who had concentrated on the ceremonial core, my studies focused on the settlement surrounding the public architecture and the hamlets above the valley floor center (Burger 1983, 1984). In the late 1970s investigations directed by Federico Kauffmann Doig and Francisco Iriarte continued to focus on the site's public architecture (Kauffmann Doig and Gonzales 1995). With the insecurity created by the Sendero Luminoso guerrilla movement, archaeological research ground to a halt during the 1980s and early 1990s. However, with the re-establishment of peace in the country, field investigations were re-initiated by U.S. archaeologist John Rick in 1995. His research program was originally designed to produce a detailed map of the public architecture but it subsequently expanded into an extensive program of excavations in the public center and eventually was extended to the ancient residential zone of La Banda on the other side of the Mosna River (Kembel and Rick 2004; Rick et al. 1998; Rick 2005).

While much remains to be done, after almost a century of research Chavín de Huántar has become one of the best documented archaeological sites in Peru. At the same time, much new research also has been conducted at other "formative" sites in the Central Andes. Some of the early sites were known to Tello and his students and considered to be Chavín "colonies" (Carrión Cachot 1948). In many cases, the new findings have forced a reevaluation of these sites and their relationship to the famous center; the results also provide evidence for evaluating the models that Tello and others have offered to explain the pan-regional impact of the developments at Chavín de Huántar.

RELIGIOUS CEREMONIALISM AND THE ARCHITECTURE OF SUPERNATURAL POWER

Located at 3,150 masl on the valley floor of the Mosna Valley, Chavín de Huántar is unusual in many respects, and recent investigations there and in other parts of the northern highlands have underscored its exceptional character. The public architecture at Chavín de Huántar covers over 10 ha; the site eventually had covered approximately 50 ha (Figure 35.1). Survey and explorations in the highlands in the Mosna Valley and other valleys in highland Ancash (the department within which Chavín de Huántar is located) have yet to find any Initial Period or Early Horizon site of comparable size or complexity. Stone sculptures adorned the façades of the platforms and courtyards of Chavín de Huántar, as well as serving—in the case of the Lanzon and Tello Obelisk—as objects of religious worship. Over two hundred stone sculptures have been recovered at the center, a number ten times that of any contemporary center in the highlands or the coast. Similarly, recent investigations have yet to document an analogue for the elaborate system of passageways and chambers built within the terraced platforms of the Chavín de Huántar complex. These and other features



Figure 35.1. The temple complex of Chavín de Huántar viewed from the east. (Richard Burger)

would have made the architecture at Chavín de Huántar unique not only for the Mosna and neighboring drainages, but also for the Central Andes as a whole.

The geographic location of Chavín de Huántar helps to explain the site's history and the developments that occurred there. Its position is particularly propitious in terms of long-distance communication and exchange. Located at the convergence of two natural routes across the glaciated Cordillera Blanca, one descending from Conococha along the Mosna Valley and the other descending from Yanashayash down the Huachecsa Valley, the center would have been a natural gateway community leading into or out of the Callejón de Conchucos and linking it with the rich Callejón de Huaylas and adjacent valleys of the north-central coast (i.e., Santa, Pativilca, Fortaleza, Huarmey). This route also led into the tropical lowlands to the east. The deeply cut Huachecsa River, impassable during half the year, and the narrowed valley floor north of the site would have made it possible for the large center to control of movement along this natural route of transportation.

The spot may have also been considered to be auspicious from the perspective of sacred geography, judging from concepts widespread in later pre-Hispanic times. The merging of two rivers, known in Quechua as *tinkuy*, was considered to have powerful spiritual significance and was favored for religious activities. Likewise, the worship of deities associated with high mountain peaks was pervasive in the pre-Hispanic Central Andes and remains common among traditional Quechua speakers in the Peruvian highlands. Johan Reinhard (1985) has argued that the temple complex could have been located in relation to the snow-capped peak of Huantsan (6,400 masl), visible on clear days from the Chavín de Huántar temple. Another geographic feature of potential religious importance are the natural hot springs located at Quercos at the southern extreme of the site. The special symbolic importance of springs in general, and hot springs in particular, has been widely documented for the Inca (Sherbondy 1982) and in modern times and there is some evidence that it extended at least as far back into the Initial Period (e.g., Williams and Pineda 1983).



Figure 35.2. Steep slopes surrounding the Mosna River are most suitable for growing high altitude crops such as potatoes, oca and quinoa. (Richard Burger)

From a subsistence perspective, Chavín de Huántar has good but not exceptional resources (Figure 35.2). Most of the land surrounding the site either consists of steep slopes suitable for high altitude crops such as potatoes, quinoa, oca and tarwi, or high puna grasslands for hunting or the herding of domesticated camelids (i.e., llamas). A narrow strip of land along the valley floor is appropriate for growing maize, fruit and garden crops dependent on irrigation. There are no local deposits of precious metals or other raw materials in the area that would help explain the size or long-term prosperity of the Chavín de Huántar center.

Beginning with the investigations of Tello, then, archaeological research has confirmed Colonial accounts that Chavín de Huántar was a religious center of great prestige. Clearing the site of a thick overburden from debris slides revealed religious architecture designed to create environments for public ceremonies and more restricted rituals. The core ceremonial area flourished between approximately 900 cal BC and 200 cal BC. It was subsequently modified by the establishment of a village on top of the abandoned temple area, with the resulting superposition of houses, cemeteries and other later features of the Huaras, Recuay and Callejon cultures of the terminal Early Horizon and Early Intermediate Period.

The public architecture unearthed at Chavín de Huántar sheds light on the religious activities carried out there. Although the site is dominated by a series of stone-faced flat-topped platforms, most people visiting the center would have been involved in activities in the open-air environments located between the main platforms and the Mosna River (Figure 35.3). Within this area there are three sunken patios or plazas demarcated by stone walls: a circular plaza 21 m in diameter (Figure 35.4), a square court 20 m on a side, and a large rectangular plaza measuring 105 m × 85 m. The circular plaza is decorated with a stone frieze illustrating a procession of anthropomorphic supernaturals or masked and costumed priests on an upper register and of jaguars on the lower register (Figure 35.5).



Figure 35.3. The massive central pyramid complex at Chavín de Huántar rises 15 m in height and is covered by a veneer of cut stone blocks. (Richard Burger)



Figure 35.4. The Circular Plaza fronts the Old Temple and was used for public ceremonies in the open air. (Richard Burger)



Figure 35.5. A stone frieze depicting a procession of jaguars decorates the interior of the Circular Plaza. (Richard Burger)

Both lines of figures converge from the north and the south on the central staircase of the central pyramid. Dressed in elaborate headdresses and costumes of feathers, jaguar pelts, and exotic materials, some of the figures hold shell trumpets to their lips while others hold stalks of the hallucinogenic San Pedro cactus. The supernatural or priestly figures also sometimes grasp weapons. This wall frieze has been interpreted as a representation of the mythical charter underlying the ceremonies in the patio, and the likelihood that such activities were actually carried out there receives support from the discovery of actual *Strombus* shell trumpets from a subterranean gallery (Galería de las Caracolas) adjacent to the patio (Rick 2005). These large conch shells had been cut and drilled so that they could serve as musical instruments and they showed heavy traces of use. They can still be played, and sound similar to instruments known as pututus that are used on ceremonial occasions in the Cuzco area today. Music, processions, dance—and perhaps ritual warfare—all probably played a role in ceremonial life at the center.

While the consumption of the psychotropic mescaline-bearing San Pedro cactus cannot be demonstrated, it would be consistent with the iconography of the sculptures (Burger 1992: 135, 176). It is also likely that other psychotropic drugs were utilized, judging from the recovery at Chavín de Huántar of small mortars and snuff spoons widely thought to have been used for the preparation and ingestion of hallucinogenic snuff. Moreover, the dozens of stone tenon heads that decorated the pyramid's exterior face appear to illustrate the process by which priests, or their mythical models, were able to transform themselves from humans into jaguars and crested eagles through the ingestion of hallucinogenic snuff. The involvement of hallucinogens in this process was made explicit by depicting the flow of mucus that results from inhaling the snuff and accompanies the remarkable transformation (Burger 1992: 157–159). The procession of jaguars in the circular plaza has a one-to-one correlation with

the procession of anthropomorphic figures above it, and the felines may simply represent the “priestly” figures in their alternative transformed state. In much of the Amazon region, powerful shamans still view the feline as their alter ego and transform themselves accordingly for the purpose of supernatural intervention (Reichel-Dolmatoff 1975).

The explicit representation of weapons on the processional frieze raises the possibility that ritual battles may have been another component of the ceremonies at Chavín de Huántar. The shedding of blood in ritual contexts played an important role in highland festivals until recent times, and some investigators have suggested that the practice had considerable antiquity (Topic and Topic 1997).

Feasting is another activity that may have taken place in the open plazas. In a series of underground chambers (known as the Ofrendas Gallery) adjacent to the circular plaza, investigators recovered hundreds of elaborately decorated ceramic bottles and bowls, most of which had been brought from distant lands. The representation on one bottle of an ear of maize with its leaves peeled back suggests that maize beer (*chicha*) was probably already being served in ritual contexts, albeit in much smaller quantities than in later times (Burger and van der Merwe 1990; Lumbreras 1993: figs. 618, 619). Judging from the animal bones recovered in the Ofrendas Gallery the feasts would have included the meat of deer, camelids (probably llamas), as well as guinea pigs (a favorite Andean party food), and the rabbit-like rodent known as *vizcacha* (Cardoza 1993). In addition, 200 human bones, many cut and burnt, were recovered intermixed with the animal bone leading to the suggestion that cannibalism also might have played a role in the rituals at Chavín de Huántar (Baraybar 1993).

The other two plazas provide less insight into the rituals carried out, but they offer additional evidence worthy of consideration. The small rectangular patio, for example, was decorated by a stone frieze depicting a series of supernaturals, including the principal Deity of Chavín de Huántar. In addition, sculptures show a host of other supernaturals that incorporate diverse features from the natural world. There are representations of supernaturals with the features of a monkey, a bat or butterfly, and a crested eagle (Rowe 1962: figs. 11, 13, 14; Bruhns 1977). While the monkey supernatural is shown blowing a *Strombus* shell trumpet, the other figures are shown in a more static position. They do not point to specific ritual behavior, but they do suggest the range of supernaturals that may have been addressed in the ceremonies carried out in this space.

A massive 20-ton altar stone on the border of the rectangular plaza points to still another aspect of ceremonialism—the coordination of ritual with celestial observations. The stone, known as the *choque chinchay*, has a series of circular depressions on its upper face and these are arranged in a manner reminiscent of the Pleiades (Lumbreras 1970: 83), a constellation still tracked by Andean farmers to determine the optimal time for planting crops and to predict the outcome of the harvest. In addition, investigators have repeatedly attempted to link the orientation of the architectural complex to other astronomical phenomena (Burger 1992: 132; Rick 2005; Urton and Aveni 1983).

Other aspects of ceremonialism can also be inferred from the architecture uncovered at Chavín de Huántar. While many of the rituals probably took place in the open plazas, others were confined to the flat-topped pyramid structures and these appear to have been intentionally shrouded in mystery. The visitor arriving at the temple complex would have been faced with a massive stone wall without visible entry and topped with larger than life sculptured heads (the famous tenoned heads) of priestly transformation hanging three-stories above the ground without visible support (Figure 35.6; Burger 1992: 158). From the open plazas to the east of the stone platforms, worshippers could have seen priests carrying



Figure 35.6. The sole tenoned head remaining in situ on the western side of the Chavín de Huántar temple. (Richard Burger)

out rituals at two summit buildings of cut stone or from the matching pair of “hanging stairways,” but it would not have been evident how the priests were able to reach these locations, since the stairways and entrances to them were hidden. The passageways and chambers within the pyramid complex likewise were invisible to those outside (Figure 35.7). At least one of these, the Gallery of the Lanzón, was designed for the worship of the site’s principal cult object, a 4.5 m-high shaft of granite (the Lanzón) carved into the terrifying image of the supreme deity (widely illustrated, see, e.g., Tello 1960: fig. 30; Figure 35.8). The only way of approaching this carving was through a 12 m-long passageway so narrow that it can only be traversed single file. The cruciform-shaped chamber in which the Lanzón is situated measures only 1.8 m on a side. From these elements we can infer that rituals, including oracular predictions that involved the Lanzón, would have involved only a small number of privileged individuals and would have been entirely hidden from most visitors to the center. A group of human finger bones incised with Chavin style motifs has

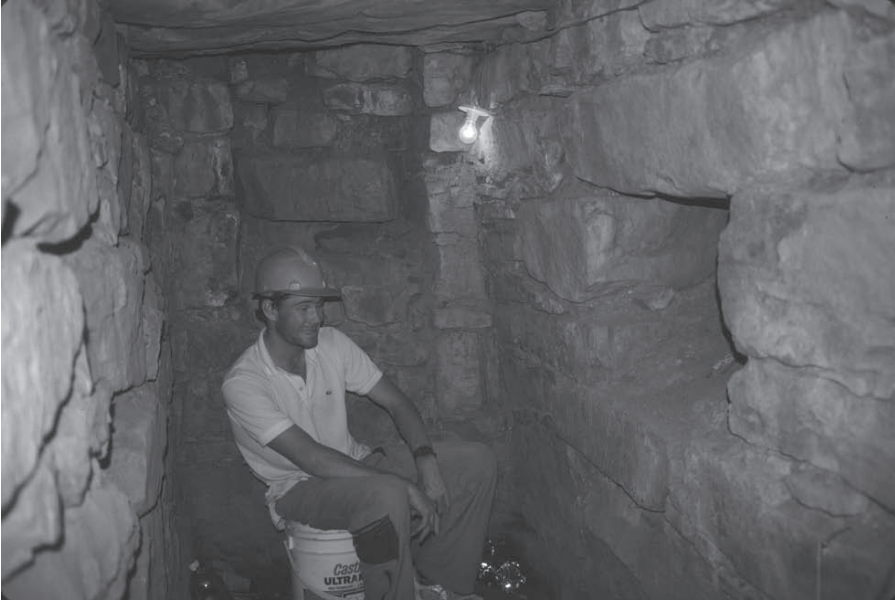


Figure 35.7. Interior chambers such as the Gallery of the Caracolas were hidden within the seemingly solid platform structures at Chavín de Huántar. (Richard Burger)

been recovered from above the Lanzón and Tello believed that blood would have been poured over the cult object.

Other interior chambers may not have been used for the ceremonies themselves but for related activities, such as the storage of ritual paraphernalia or perhaps even for the training of religious specialists within the perpetually dark subterranean chambers (Burger 1992: 142–143; Silva 1978). The roaring of water echoing through these interior spaces would have added another awe-inspiring element to the Chavín de Huántar experience. Experiments have shown that rainwater draining through the stone lined drainage system produces a powerful sound reminiscent of pulsating applause that is audible both inside and outside the subterranean architecture (Lumbreras et al. 1976). Thus, the design of the ceremonial complex was intended to produce a sense of awe consonant with the transcendent cosmological claims of the ceremonial center. But the element that most impressed later Andean people, judging from the early historic accounts of the site, was its stone sculpture.

STONE SCULPTURE AT CHAVÍN DE HUÁNTAR

No other center in Peru dating to the second millennium BC has as many impressive stone carvings as Chavín de Huántar. The art style of the stone sculptures, like the architecture, was created to communicate the power of the esoteric knowledge embodied by the temple and its priests. The supernaturals represented draw upon the features of powerful and dangerous carnivores such as the jaguar, anaconda, harpy eagle and cayman, frequently combining these features to produce monstrous hybrids unknown in the natural world. Moreover, the natural habitats of these creatures were the forested eastern slopes and

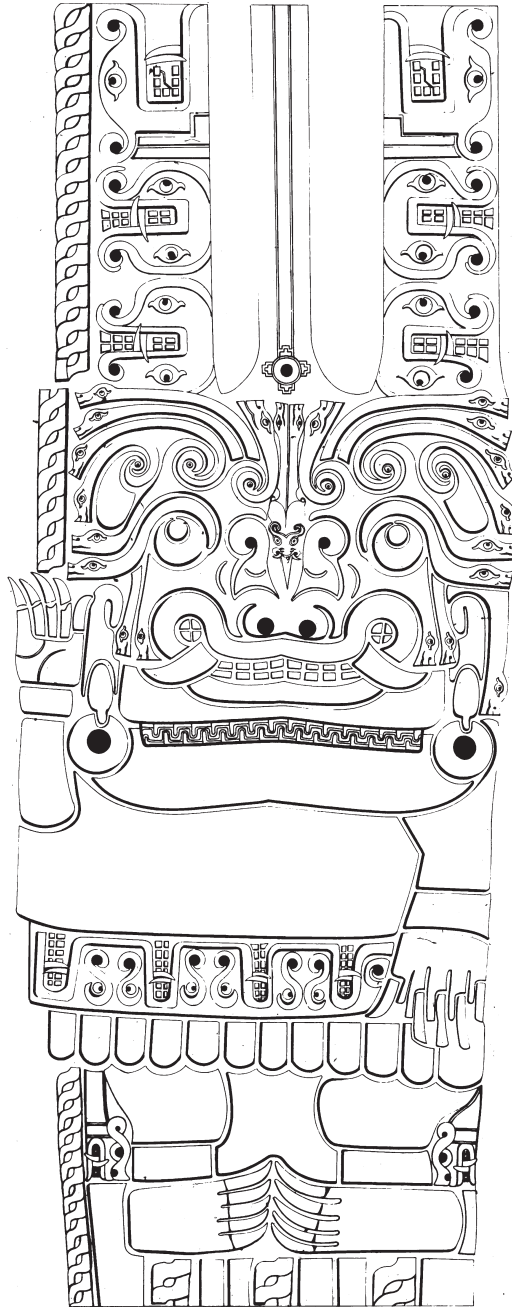


Figure 35.8. Roll-out drawing of the Lanzón, a stone sculpture depicting Chavín de Huántar's supreme deity. (Richard Burger)

tropical lowlands far to the east, a world radically different from the intermontane valley environment in which Chavín de Huántar is situated.

The mysterious quality of these images is further enhanced by an artistic style that is replete with what Tello (1960) referred to as metaphorical substitutions or what Rowe (1962) called “kennings.” Feathers on a harpy eagle are shown as snakes and its ankles are shown as fanged jawless profile heads. These substitutions produce a density of imagery that is difficult to interpret for the uninitiated and some representations become even more challenging to read because of additional elements added so that the images can also be read upside down or rotated by 90 degrees. The iconography is thus inherently resistant to the novice viewer and their comprehension would have required specialized knowledge, perhaps conveyed during the rituals and religious training. Many of these conventions resonate with the sensibilities produced by psychotropic substances; based on ethnographic and experimental data, it is known that these facilitate the discovery of layers of previous unseen realities and produce out-of-body experiences that would have permitted sculptures to be viewed from any perspective.

The religious system underlying the ceremonial architecture remains poorly understood but the representations of their precepts, deities and myths in carved stones has provided some sense of its basic elements (Burger 1992; Campana 1995; Rowe 1962). An anthropomorphic deity usually shown with large fangs, long hair and elaborate ear ornaments was the principal supernatural and the focus of highest worship (Figure 35.8). This supreme deity may have been associated with the forces that control the weather, such as Illapa in later times, or with creation itself, such as Wirakocha in Inca times, but this cannot be demonstrated. This deity was charged with maintaining the harmony through the balancing of opposing forces. There were also other supernaturals associated with the celestial sphere, often with the features of harpy eagles or hawks, sometimes shown as the guardians or assistants of the principal deity. Worship also involved the supernatural forces present in the world inhabited by humans and animals; these were often depicted as jaguars. The forces associated with the underworld, and the water that circulated through it, were represented on the sculptures by fanged anaconda-like serpents or cat-snakes. Finally, there are representations of imaginary creatures such as a monstrous flying cayman that was apparently worshipped as the mythical source of food.

The forces at work in Chavín cosmology were conceptualized as being organized along dual principles in which dyads were seen as both opposing and complementing each other. This pervasive concern with duality was expressed both in the sculpture and the architecture. A good example of the former can be found on the depiction of the supreme deity in which it holds a male symbol, the *Strombus* shell in its right hand and a female symbol, the *Spondylus* shell in its left hand (see, e.g., Burger 1992: frontispiece). To underline the pervasiveness of dualism, this principle was made explicit in some of the architectural elements of the temple area. A fine example of the latter is the use of soft black limestone on the north and hard white granite on the south for the lintel, façade and steps of the so-called New Temple (see, e.g., Burger 1992: fig. 173).

BUILDING SEQUENCES AND THE EXPANSION OF THE CEREMONIAL COMPLEX

The ceremonial center began as a relatively small temple complex and only grew to its final form over many centuries. The precise chronology of this expansion is still being worked out. The first attempt to outline this cumulative process was made by John Rowe in 1962;

Rowe's work was informed by the observations made by Marino Gonzáles during his decades at the site. In this three-phase sequence the temple complex began as a simple U and then expanded to the south first with the extension of the platform pyramid and then with the creation of the Black and White Portal and the additions of new rectangular plazas. The original configuration was referred to as the Old Temple while the final additions were seen as constituting the New Temple; the latter had its own axis paralleling that of the original complex. Rowe (1962) argued that a four-phase sculptural sequence (AB, C, D, and EF) could be correlated with this building history, based on sculptural associations. Burger (1984) developed a three-phase ceramic sequence, which was also tentatively correlated with the construction sequence in the center.

This framework, however, has been questioned by the investigations of John Rick and Silvia Kembel at the ceremonial complex (Rick et al 1998; Kembel and Rick 2004, 2005, in press; Kembel in press). They have proposed a detailed 15-episode sequence identified through mapping and selective excavation of the architecture. Unlike the sequence of Rowe, this revised sequence identifies additions in the height and width of the central pyramid complex. Rick and Kembel posit a much longer history for the public constructions, arguing that their earlier phases were contemporary with early or mid-Initial Period complexes on the coast and highlands. Unfortunately, these chronological claims have not yet been supported with unambiguous ceramic and/or radiometric evidence (Burger and Salazar in press). Regardless of these chronological issues, the proposed construction sequence demonstrates that the building history at Chavín de Huántar is more complex than ever imagined. At the same time, the new sequence acknowledges a generally north to south expansion in construction activity as well as the striking continuity in the style and technology of construction throughout the sequence. These continuities are testimony to the cultural continuity that characterized the temple until its abandonment in the late Early Horizon. The additions of galleries, chambers and, most importantly, open plazas would have allowed the Chavín de Huántar center to serve an ever increasing number of worshippers. The rectangular plaza, for example, could have comfortably contained well over a thousand visitors without difficulty, in contrast to the earlier circular plaza that could have accommodated only about a hundred people.

CHAVÍN DE HUÁNTAR: A PAN-REGIONAL CENTER OF WORSHIP AND INTERACTION

From the outset, the public that the Chavín temple attracted seems to have been drawn from beyond the immediate area. This is reflected in the offerings brought to the center and found in chronologically early contexts such as the Gallery of the Offerings. The contents of these chambers contain objects from areas hundreds of kilometers away including pottery of the Manchay culture on Peru's central coast, two types of Cupisnique pottery from Peru's north coast, a carved stone beaker typical of the Jequetepeque drainage on the far northern coast, and vessels decorated in a curvilinear painted pottery style from the Cajamarca highlands to the north (Burger 1984: 172–187; Lumbreras 1993). The impression that Chavín de Huántar had become a center of visitors from many distant regions is reinforced by the contents of refuse from Chavín de Huántar's earliest residential occupation that included pottery in the Kotosh Kotosh style of the highlands to the south, the Haldas style from Casma Valley on the north-central coast, and the Pacopampa-Pacopampa style of the far northern highlands (Burger 1984: 75–80; cf. Druc 1998). This unusually cosmopolitan patterning resonates with the early historic description characterizing Chavín

de Huántar as an oracular center with a pan-regional influence comparable to Jerusalem or Rome in the Old World.

The Chavín de Huántar style appears to have intentionally drawn from the religious traditions of many regions while copying none of them (Burger 1993). Thus, the flat topped U-shaped pyramid pattern can be seen as being inspired by the central coast (Burger and Salazar 1991, 1998; Patterson 1985; Quilter 1985; Ravines and Isbell 1975), while the circular plaza that fronted it seems drawn from the traditions of the north central coast (Shady 1997; Williams 1971, 1985). The importance of columns at the center seems to reflect a long-standing tradition from Peru's north coast known from Cupisnique centers such as Huaca Lucia and Huaca de los Reyes. The idea of subterranean galleries and finely cut stone veneers may have been based on elements developed at Late Preceramic and Initial Period centers, such as La Galgada (Burger 1992; Grieder 1985). These highland and coastal elements were combined with a symbol system that drew generously from the fauna and flora of the tropical forest, so much so that many investigators have argued that Chavín de Huántar's cosmology had a tropical forest source (Figure 35.9) (Burger 1992; Lathrap 1973, 1985; Roe 1982; Tello 1923). At the same time, many of the artistic conventions employed in the style of Chavín religious iconography can be traced to the Cupisnique, Manchay and other Initial Period cultures where they appear on the clay sculptures that decorated their temples centuries before the stone sculptures at Chavín de Huántar (Larco 1941; Pozorski 1976; Ravines 1984).



Figure 35.9. A sculpture from the small rectangular patio of the New Temple depicts a priest in a monkey costume blowing a *Strombus* shell trumpet. Monkeys are native to the Amazonian lowlands to the east of Chavín de Huántar. (Richard Burger)

Thus, in creating their public architecture the builders of the Chavín de Huántar complex sought to create an international style that blended diverse traditions into a seamless and distinctive whole that from late Initial Period times on served as a sacred place for a diverse audience of worshippers and travelers. The currently available evidence suggests that the art and architecture of Chavín de Huántar corresponded to what anthropologists and historians refer to as an “invented tradition,” a pattern in which alien antecedent elements are appropriated and melded together to give the false impression of an old and prestigious tradition (Burger 1993).

A possible chamber of the Kotosh Religious Tradition—which is known from neighboring highland valleys—has recently been encountered near the Huachecsa at Chavín de Huántar. Deeply buried beneath later Early Horizon deposits, it is unclear whether it dates to the Initial Period or Early Horizon. It could be contemporary with the Chavín style architecture in the ceremonial core (Daniel Contreras, personal communication), but until its age is determined its relationship to the development of the Chavín architectural style remains unclear.

THE CHANGING CHARACTER OF CHAVÍN DE HUÁNTAR'S RESIDENTIAL POPULATION

Decades of excavations demonstrate that the monumental core of Chavín de Huántar was devoted exclusively to religious ceremonies and related activities. However, there were habitation areas associated with the public constructions throughout the history of the temple and excavations in these areas have provided evidence of the changing social and economic context of the temple activities (Burger 1984). These data suggest a society that was undergoing profound changes and a dynamism (see Burger 1984: maps 2, 3, 4) hidden by the continuity in the architecture and iconography of the temple itself.

In order to study these changes, a ceramic sequence was developed from stratigraphic excavations in the habitation areas and dated using radiometric measurements. While this chronological tool remains crude, it is sufficient to provide a broad overview of many of the changes that occurred at Chavín de Huántar during the late Initial Period and Early Horizon. It consists of three phases: the Urabarriu phase (approx. 900–500 cal BC), the Chakinani phase (approx. 500–400 cal BC) and the Janabarriu phase (approx. 400–250 cal BC). During the Urabarriu phase, there were two small residential areas—one next to the Huachecsa River just north of the Old Temple and one 600 m to the north on the other side of the Huacheca (and beneath the modern town of Chavín de Huántar). A third area utilized during the Urabarriu phase was located 200 m further north and was associated with a wall of massive stones which crosses the valley where it narrows. This wall was almost 1 m high and 7 m thick, and it runs for at least 160 m. Burger hypothesized that this wall could have served to limit movement through the valley, but Wilhelm Diessl (2004) has collected additional data on similar walls in this zone and he believes that they formed a gigantic enclosure measuring 900 by 1000 m. Whatever the case, based on the available evidence it would be hard to argue for a population at or near the temple of more than a few hundred people. It is significant, however, that the occupation spanned both sides of the Huachecsa, which is impassable during rainy season without a bridge.

The Urabarriu phase refuse provided evidence of an economy based on hunting of deer and wild camelids, as well as herded llamas, and the animals consumed were butchered in the settlement itself. Isotopic studies indicate that maize was being consumed but

that the bulk of the diet consisted of C3 plants, probably potatoes and other high altitude crops (Burger and Van der Merwe 1990). Although the tools used were made of local raw materials, there is ample evidence for contact with distant communities in the highlands and coast, including ceramics from Huanuco, Casma, Chicama and even Pacopampa. There are also mussel and clam shells and fish bone from the Pacific coast. The subsequent Chakinani phase is marked by the abandonment of the two northernmost zones of activity and the concentration of residences around the temple itself, although the north side of the Huachecsa continued to be occupied. In terms of the economy, there was a sharp decline in hunted animals, and domesticated llamas became the principal source of meat in the diet (Miller and Burger 1995). The evidence for long-distance contacts continued with an increase in the kinds of clams, mussels and fish being brought from the coast as well as various kinds of exotic pottery, including from Cajamarca (Burger 1984).

During the Janabarriu Phase there is a population explosion extending along the west bank of the Mosna both to the south and the north of the temple. Recent research has uncovered substantial evidence of occupation on the eastern bank of the Mosna as well. This occupation may have covered some 40 ha and the population could have reached 2,000 to 3,000 individuals or more. This settlement constitutes a proto-urban pattern without clear precedent. It is interesting—given this concentration of population around the center—that there is increasing evidence for specialization and social differentiation. In terms of food, the pattern of maize consumption appears to remain the same but the pattern of meat consumption undergoes a transformation. People living in high altitude villages now produced llama meat for consumption by the residents of Chavín de Huántar; they sent down only select cuts of meat, often in the form of dried meat packages. Rather than using local cherts for chipped tools, the valley population began provisioning itself with obsidian brought from southern Ayacucho, located some 500 km to the south (Burger and Glascock 2000).

For the Janabarriu Phase, there is clear status differentiation in the remains of the settlement: the area immediately to the west of the monumental core contains high prestige materials, while the zone on other side of the Huachecsa River either lacks these materials or contains them in much lower quantities. In the high status zone, excavations recovered finely crafted gold jewelry, cinnabar from south-central Peru and *Spondylus* shell from Ecuador, as well as greater quantities of exotic pottery and foods (Burger 1984, 1998). It is particularly telling that while all groups relied on the consumption of llamas for their protein, the high status group ate younger, more tender animals than those living in the lower status residential zone (Miller and Burger 1995). There was also some evidence for activity differentiation with possible evidence of hide preparation in the low status area and for the preparation of *Spondylus* shell jewelry in the high status zone. In a detailed petrographic study of ceramics from Chavín de Huántar, Isabel Druc (2004) concluded that there was a more diverse and intense local production of pottery during the Janabarriu phase. In summary, during the Janabarriu Phase there is a notable increase in the size and complexity of the population living around the temple area, and this growth is probably a function of the increasing success of the temple itself both in attracting visitors (i.e., pilgrims) and in creating the conditions for increased long-distance trade from which Chavín de Huántar was an important beneficiary. The ability to rely on outsiders for meat production, lithic raw materials and even 30–40% of the pottery utilized was a remarkable achievement and was a testament to the exceptional wealth and power of the site. In my view, the Janabarriu Phase can be correlated with the construction of the New Temple, including the Black and White Portal and the Rectangular Plaza (Burger 1984, 1992). Not coincidentally, these architectural additions greatly enhanced the temple's ability to accommodate visitors in their ceremonial activities.

Within the Mosna drainage, the Chavín de Huántar ceremonial-civic complex is much larger than any other known Initial Period or Early Horizon site. The pioneering explorations of Tello and Espejo (Tello 1960; Espejo 1951, 1955) have now been supplemented by the more systematic surveys in the drainage by Hernan Amat (1971, 1976), Wilhelm Diessel (2003, 2004) and Bebel Ibarra (2003). These studies reveal that while there are numerous small mounds with stone terracing distributed along the valley slopes and small residential settlements on ridges near the upper limits of agriculture, there apparently are no equivalent pyramid complex equivalent to or even similar to Chavín de Huántar. Indeed, the settlement pattern suggests a small city-state or complex chiefdom with Chavín de Huántar at its center. The cohesion of these different settlements is, in part, suggested by the presence of stone sculptures carved in the characteristic Chavín style representing the same supernatural figures that are shown so prominently at the center. My excavations at Pojoc, one of the small villages above Chavín de Huántar, uncovered additional evidence of Chavín ceremonial activities at these high altitude sites (Burger 1983). Similarly, the presence of exotic shell and stone in these small sites, as well the results of the faunal analysis (Miller and Burger 1995), suggest a strong interdependency between Chavín de Huántar and the smaller sites surrounding it within the Mosna drainage (Burger 1983).

The large size of Chavín de Huántar and its massive public constructions appear to be unique in highland Ancash. Fieldwork in the neighboring Chacas, Maribamba and Yanamayo valleys, also located within the Callejón de Conchucos region, has encountered sites like the second and third tier settlements in the Mosna, but has failed to find centers comparable to Chavín de Huántar (Herrera 2003; Orsini 2003; see also Burger 2002). To the west of the Mosna in the agriculturally rich Callejón de Huaylas Valley, formed by the highland section of the Santa Valley, many small Initial Period and Early Horizon sites have been located. Many of them, even those with evidence of public constructions, are quite modest in scale, rarely exceeding a few hectares (e.g., Burger and Salazar 1985). Tumshucaico is a conspicuous exception to this statement but recent excavations there by Alberto Bueno (2003) led him to conclude that the public constructions there date to the Late Preceramic, many centuries prior to Chavín de Huántar's establishment. Another center, Pomacayan, has been so badly destroyed by later occupations and the expansion of Huaraz that it is impossible to estimate its original size. One of the few large sites in highland Ancash with an important Initial Period and/or Early Horizon component is Chupacoto near the town of Huaylas, but no systematic investigations have ever been carried out there (Burger 1992:123; Thompson 1962).

At the present time, Chavín de Huántar appears to have been a unique center of power and complexity within the Ancash highlands. The emulation of Chavín de Huántar's iconography and ceramic style by other sites in highland Ancash attests to the site's special regional importance, as does the adaptation of Chavin's religious art in stone and bone (Tello 1960; Diessel 2004; Burger 1983, 1993).

CHAVÍN DE HUÁNTAR WITHIN A PAN-REGIONAL FRAMEWORK: PEER POLITIES AND THE CHAVIN HORIZON

The emergence of Chavín de Huántar as a dominant regional center during the late Initial Period and Early Horizon was paralleled by similar developments elsewhere in the northern highlands and the upper reaches of adjacent coastal drainages. Among the most important of these other regional centers was Pacopampa in Chota, Layzon in Cajamarca, Kuntur Wasi in the mid-Jequetepeque Valley and Pallka in the mid-Casma Valley. These centers

all featured massive public constructions with elaborate stone-lined drainage systems, rectangular and circular plazas, high stone-faced terraces, and finely constructed summit buildings. At least three, and probably all, of these also were adorned with carvings representing felines and other supernaturals. While none of the centers appears to be quite as impressive as Chavín de Huántar, each dominates the site hierarchy of its respective hinterland. In addition, there is evidence that each center may have had its own group of elite leaders, who were buried within the ceremonial architecture with luxury goods such as *Spondylus* necklaces, bead skirts or pectorals, gold jewelry, and cinnabar face paint (see Onuki and Kato 1993). The extensive fieldwork carried out at both Kuntur Wasi and Pacopampa has confirmed that the centers are contemporary with Chavín de Huántar, both with their origins in the late Initial Period and their apogee in the Early Horizon (Morales 1980, 1998; Rosas and Shady 1970, 1974).

Over half a century ago, Kuntur Wasi and similar centers were described as Chavin “colonies” by Tello’s protégé Rebeca Carrion Cachot (1948), but subsequent archaeological studies have left little doubt about their distinctive cultural characteristics and independence. There is no evidence for a Chavín empire or expansive state but there is ample evidence of interaction between Chavín de Huántar and these other centers, both in terms of the exchange of commodities and emulation of style. In trying to model this relationship it is tempting to apply the notion of “peer polity” introduced by Colin Renfrew (1982). One can hypothesize that these centers, each the center of a small polity, competed with each other for prestige while at the same time exchanging valuables through gift giving and other mechanisms. The creation of alliances through intermarriage also must be considered. It is likely that such social networks underlay the movement of rare commodities such as obsidian or *Spondylus*. Finally, the reinforcement of these relationships through the addition of Chavín de Huántar’s religious cult also may have played a role in cementing these essentially symmetric relationships, as reflected in the abundance of exotic pottery at Chavín de Huántar and other coeval centers (Druc 1998).

Chavín de Huántar also appears to have entered into relationships with groups that were not its peers, at least in terms of sociocultural complexity. As evidenced by the emulation of Chavin’s Early Horizon pottery style, the spread of Chavín’s sphere of interaction advanced into the high puna grasslands of the central highlands of Junin and Pasco, where herds of llamas, alpacas and wild vicuña abounded. It also left a strong imprint in the Hualaga drainage that links the arid Andean slopes with the more tropical ceja de selva lands where coca is now produced in abundance as a cash crop. In the Huánuco area, the increasing integration into the Chavin sphere led to the reorganization of the public centers and local settlement pattern (Izumi 1971).

Further to the south Chavín de Huántar appears to have established special relationships with the people of the Huancavelica area, perhaps to get access to the enormous cinnabar deposits native to this zone (Burger and Matos 2002). Similarly, links were established still further south in the Vilcashuaman area of Ayachuco, just north of the main source of obsidian for Chavín de Huántar and other coeval sites in central and northern Peru (Burger and Glascock 2000; Ochatoma 1985; Yuichi Matsumoto, personal communication). In both cases, monumental complexes were built in areas without a prior tradition of public architecture, and elements of Chavín stone-working and layout were emulated in their construction, as documented at Atalla and Campanayoq. These sites in Huancavelica and Ayacucho are characterized by locally produced pottery styles that incorporate forms and designs typical of the ceramics of the Janabarriu Phase at Chavín de Huántar. In most of the cases where the relations would have been asymmetric both parties probably viewed

these connections as advantageous. These new ties broke down traditional barriers and led to the sharing of ideas and technologies, as well as enhancing the flow of goods. There is no evidence that this “Chavin horizon” was spread by force and, in fact, warfare appears to have been a very minor part of life.

Many areas, such as the Huamachuco-Quirovilca-Cajamarca portion of the northern highlands, or the lower sections of the Casma-Nepeña-Santa valleys of the central coast, appear to have consciously avoided being drawn into the sphere of interaction associated with Chavín and they produced distinctive and contrasting cultural patterns that set them apart (Chicoine 2006). It is interesting, within this context, that the clearest evidence of organized warfare during the Early Horizon (Daggett 1987; Pozorski and Pozorski 1987; Proulx 1985) occurs in the coastal area that resisted incorporation into the Chavin sphere of interaction. These military activities resulted in the construction of large-scale defensive architecture such as Chankillo (Ghezzi 2006).

Other areas of the north, central and south coast of Peru apparently chose to become integrated within the Chavín sphere of interaction during the Early Horizon and some of these groups even embraced the Chavín cult. The earliest evidence of the expansion of the Chavín cult may come from the sites of Cerro Blanco and Huaca Partida in Nepeña, and may date to the end of the Initial Period, but most evidence of the cult’s impact is many centuries later. Few Early Horizon sites on the coast have been extensively excavated but limited investigations attest to ceramic components with strong similarities to the Janabarriu style at Caballo Muerto and Morro de Eten on the north coast, Ancon on the central coast and Cerillos and Karwa on the south coast (Alva 1986; Burger 1984, 1988, 1993; Elera 1983; Wallace 1962; Watanabe 1976). Perhaps the best evidence for the presence of the Chavín cult comes from representations in the classic Chavín style of the highland temple’s supernatural beings on portable objects. Whether shown on elaborately engraved monochrome bottles or painted on polychrome cotton textiles, these locally produced images show an intimate knowledge of Chavín religious art that can only be explained by direct contact with the ceremonial center at Chavín de Huántar (Figure 35.10). Their reproduction in these distant lands seems



Figure 35.10. Painted cotton textiles from Karwa on Peru’s south coast depict Chavín supernaturals in the classic style of the Chavín de Huántar sculptures. (Richard Burger)

to be more than simple emulation; it bespeaks of religious belief, a possibility consistent with a model of long-distance pilgrimage to the extraordinary center in the Mosna Valley. This pilgrimage model may be broadened to include the possibility of formal branches of the cult in some of these areas, in which case one can conceptualize Chavín as a “regional cult” that cross-cut ethnic and linguistic boundaries reinforcing the economic and social network that already linked many of these groups (Burger 1988, 1993; Werbner 1977).

The emergence of the Chavín sphere of interaction during the Early Horizon, with its complex and multiple facets, has yet to be investigated in depth. Nonetheless, it is clear that this phenomenon was intimately linked with the history of the Chavín de Huántar site and that it produced a degree of cultural integration in the Central Andes that was unprecedented. In that sense, “Chavín” in the broadest sense constitutes a *cultura matriz* of the kind imagined by Julio C. Tello almost a century ago.

REFERENCES

- Alva, Walter, 1986, *Cerámica Temprana en el Valle de Jequetepeque, Norte del Perú*. Materialien zu Allgemeinen und Vergleichenden Archäologie, Vol. 32. KAVA, Bonn.
- Amat, Hernán, 1971, Informe preliminar de exploraciones arqueológicas PAEA. *Arqueología y Sociedad* 5: 36–56.
- , 1976, Estudios arqueológicos en la cuenca del río del Mosna y en el Alto Marañón. *Actas del XLI Congreso Internacional de Americanistas* III: 532–546. Mexico.
- Bennett, Wendell C., 1942, *Chavin Stone Carving*. Yale Anthropological Studies, Vol. 3. New Haven.
- , 1944, *The North Highlands of Peru: Excavations in the Callejón de Huaylas and at Chavín de Huántar*. Anthropological Papers of the American Museum of Natural History, Vol. 39, Pt. 1.
- Baraybar, José Pablo, 1993, Identificación de los huesos humanos. In *Chavín de Huántar: Excavaciones en la Galería de las Ofrendas*, edited by Luis G. Lumbreras, pp. 394–402. Materialien zur Allgemeinen und Vergleichenden Archäologie, Band 51. Verlag Phillip von Aern, Mainz am Rhein.
- Bruhns, Karen Olsen, 1977, Chavín butterflies: a tentative interpretation. *Nawpa Pacha* 15: 39–47.
- Burger, Richard L., 1983, Pojoc and Waman Wain: two Early Horizon villages in the Chavín heartland. *Nawpa Pacha* 20 (1982): 3–40. Berkeley.
- , 1984, *The Prehistoric Occupation of Chavín de Huántar, Peru*. University of California Publications in Anthropology, Vol. 14. University of California Press, Berkeley.
- , 1985, Concluding remarks: early Peruvian civilization and its relation to the Chavín Horizon. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 269–289. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1988, Unity and heterogeneity within the Chavín Horizon. In *Peruvian Prehistory*, edited by Richard W. Keatinge, pp. 99–144. Cambridge University Press, Cambridge.
- , 1992, *Chavin and the Origins of Andean Civilization*. Thames and Hudson, London.
- , 1993, The Chavín horizon: stylistic chimera or socioeconomic metamorphosis? In *Latin American Horizons*, edited by Donald Rice, pp. 41–82. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1998, *Excavaciones en Chavín de Huántar*. Fondo Editorial, Pontificia Universidad Católica del Perú, Lima.
- , 2002, The enigma of the Yauya Stela. *Archaeology* 55 (6): 62–67.
- and Michael D. Glascock, 2000, Locating the Quispispa obsidian source in the Department of Ayacucho, Peru. *Latin American Antiquity* 11 (3): 258–268.
- and Ramiro Matos, 2002, Atalla: a center on the periphery of the Chavín horizon. *Latin American Antiquity* 13 (2): 153–177.
- and Lucy C. Salazar, in press, The Manchay Culture and the coastal inspiration for highland Chavín civilization. In *Transformation in the Art, Architecture, and Culture of Chavín*, edited by William J. Conklin and Jeffrey Quilter. Cotsen Institute, UCLA, Los Angeles.
- and Lucy C. Salazar-Burger, 1985, The early ceremonial center of Huaricoto. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 111–138. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- _____ and Lucy C. Salazar-Burger, 1991, The second season of investigations at the Initial Period center of Cardal, Peru. *Journal of Field Archaeology* 18 (3): 275–296.
- _____ and Lucy C. Salazar-Burger, 1998, A sacred effigy from Mina Perdida and the unseen ceremonies of the Peruvian Formative. *Res* 33: 28–53.
- _____ and Nikolaas J. Van der Merwe, 1990, Maize and the origin of highland Chavín civilization: an isotopic perspective. *American Anthropologist* 92 (1): 86–96.
- Carrión Cachot, Rebeca, 1948, La cultura Chavín: dos nuevas colonias. Kuntur Wasi y Ancón. *Revista del Museo Nacional de Antropología y Arqueología* 2 (1): 99–172.
- _____, 1959, *La Religión en el Antiguo Perú*. Lima.
- Campana, Cristobal, 1995, *Arte Chavín. Analisis Estructural de Formas e Imagenes*. Universidad Nacional Federico Villarreal, Lima.
- Cardoza, Carmen Rosa, 1993, Identificación de los restos animales depositados en la Galería de las Ofrendas de Chavín de Huántar. In *Chavín de Huántar: Excavaciones en la Galería de las Ofrendas* edited by Luis Lumbreras, pp. 371–393. *Materialien zur Allgemeinen und Vergleichenden Archaeologie*, Band 51. Verlag Phillip von Abern, Mainz am Rhein.
- Chicoine, David, 2006, Archaeology and Society at Huambacho (800-200 BC), Nepeña Valley, Peru Unpublished Ph.D. dissertation. Sainsbury Research Unit, University of East Anglia, Norwich, United Kingdom.
- Daggett, Richard, 1987, Toward the development of the state on the north central coast of Peru. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 70–82. Cambridge University Press, Cambridge.
- Diessl, Wilhelm, 2003, Sitios arqueológicos en los distritos de Chavín, Huántar y San Marcos. In *Arqueología de la Sierra de Ancash: Propuestas y Perspectivas*, edited by Bebel Ibarra, pp. 331–370. Instituto Cultural Runa, Lima.
- _____, 2004, *Sitios Arqueológicos en los Distritos Huantar, San Marcos y Chavín*. Instituto Cultural Runa, Lima.
- Druc, Isabelle C., 1998, *Ceramic Production and Distribution in the Chavín Sphere of Influence (North-Central Andes)*. BAR International Series, 731. Oxford.
- _____, 2004, Ceramic diversity in Chavín de Huántar, Peru. *Latin American Antiquity* 15 (3): 344–363.
- Duviols, Pierre, 1973, Huari y Llacuaz. Agricultores y pastores: un dualismo prehispánico de oposición y complementariedad. *Revista del Museo Nacional* 39: 153–187.
- Elera, Carlos, 1983, Moro de Eten, Valle de Lambayeque. *Boletín* 8: 25–26. Museo Nacional de Antropología y Arqueología, Lima.
- Espejo, Julio, 1951, Exploraciones arqueológicas en las cabeceras del Pukcha (Perú). *Cuadernos Americanos* LVI(2):139–152. Mexico.
- _____, 1955, Gotush: nuevos descubrimientos en Chavin. *Baessler-Archiv* n.f. III:123–136. Berlin.
- Fung, Rosa, 1975, Excavaciones en Pacopampa, Cajamarca. *Revista del Museo Nacional* 42: 129–210.
- Ghezzi, Ivan, 2006, Religious warfare at Chankillo. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 67–84. Springer, New York.
- Grieder, Terence and Alberto Bueno Mendoza, 1985, Ceremonial architecture at La Galgada. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 93–109. *Dumbarton Oaks Research Library and Collection*, Washington, D.C.
- Herrera, Alexander, 2003, Patrones de asentamiento y cambios en las estrategias de ocupación en la cuenca sur del Río Yanamayo, Callejon de Conchucos. In *Arqueología de la Sierra de Ancash: Propuestas y Perspectivas*, edited by Bebel Ibarra, pp. 221–250. Instituto Cultural Runa, Lima.
- Ibarra, Bebel, 2003, Arqueología del Valle del Puchca: economía, cosmovisión, y secuencia estilística. In *Arqueología de la Sierra de Ancash: Propuestas y Perspectivas*, edited by Bebel Ibarra, pp. 251–330. Instituto Cultural Runa, Lima.
- Izumi, Seiichi, 1971, The development of the Formative culture in the ceja de montaña: a viewpoint based on materials from the Kotosh site. In *Dumbarton Oaks Conference on Chavin*, edited by Elizabeth P. Benson, pp. 49–72. *Dumbarton Oaks Research Library and Collection*, Washington, D.C.
- Kauffmann Doig, Federico, 1964, Los estudios de Chavin, 1553–1919. *Fénix* 14: 147–249. Lima.
- _____, and Marino Gonzales, 1995, 25 planos arquitectónicos de Chavín de Huántar. *Arqueológicas* 22. Museo Nacional de Antropología y Arqueología, Lima.
- Kembel, Silvia and John Rick, 2004, Building authority at Chavín de Huántar: models of social organization and development in the Initial Period and Early Horizon. In *Andean Archaeology*, edited by Helaine Silverman, pp. 51–76. Blackwell, Malden, MA.
- Larco Hoyle, Rafael, 1941, *Los Cupisniques*. Casa Editora y Variedades, Lima.

- Lathrap, Donald W., 1973, Gifts of the cayman: some thoughts on the subsistence basis of Chavín. In *Variations in Anthropology*, edited by Donald Lathrap and Jody Douglas, pp. 91–105. Illinois Archaeological Survey, Urbana.
- , 1985, Jaws: the control of power in the early nuclear American ceremonial center. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 241–267. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Lumbreras, Luis G., 1970, *Los Templos de Chavín*. Corporación Peruana de Santa, Lima.
- , 1971, Toward a re-evaluation of Chavín. In *Dumbarton Oaks Conference on Chavín*, edited by Elizabeth P. Benson, pp. 1–28. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1977, Excavaciones en el templo antiguo de Chavín (sector R): informe de la sexta campaña. *Ñawpa Pacha* 15: 1–38. Berkeley.
- , 1989, *Chavín de Huántar en el Nacimiento de la Civilización Andina*. Instituto de Estudios Peruanos, Lima.
- , 1993, *Chavín de Huántar: Excavaciones en la Galería de las Ofrendas*. Materialien zur Allgemeinen und Vergleichenden Archäologie, Band 51. Verlag Phillip von Aern, Mainz am Rhein.
- , C. Gonzalez and B. Lietaer, 1976, *Acerca de la Función del Sistema Hidráulico de Chavín*. Investigaciones de Campo, No. 2. Museo Nacional de Antropología y Arqueología, Lima.
- Middendorf, Ernst, 1974 [1893–95], *Perú. Observaciones y Estudios del País y Sus Habitantes Durante una Permanencia de 25 Años* (translated by Ernesto More). Universidad Nacional Mayor de San Marcos, Lima.
- Miller, George R. and Richard L. Burger, 1995, Our father the cayman, our dinner the llama: animal utilization at Chavín de Huántar, Peru. *American Antiquity* 60 (3): 421–458.
- Morales, Daniel, 1980, *El Dios Felino de Pacopampa*. Seminario de Historia Rural Andina, Universidad Nacional Mayor de San Marcos, Lima.
- , 1998, Investigaciones en Pacopampa, departamento de Cajamarca. *Boletín de Arqueología PUCP* 2: 113–126. Pontificia Universidad Católica del Perú, Lima.
- Ochatoma, José, 1985, *Acerca del Formativo en la Sierra Centro-Sur*. Tesis para optar el Título de Licenciado en Arqueología. Universidad Nacional de San Cristóbal de Huamanga, Ayacucho.
- Onuki, Yoshio and Yasutake Kato, 1993, *Las Excavaciones en Kuntur Wasi, Peru: La Primera Etapa 1988–1990*. University of Tokyo, Tokyo.
- Orsini, Carolina, 2003, Transformaciones culturales durante el Intermedio Temprano en el Valle de Chacas: hacia el desarrollo de asentamientos complejos en un área de la sierra nor-central del Perú. In *Arqueología de la Sierra de Ancash: Propuestas y Perspectivas*, edited by Bebel Ibarra, pp. 161–174. Instituto Cultural Runa, Lima.
- Patterson, Thomas C., 1985, The Huaca La Florida, Rimac Valley, Peru. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 59–69. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Pozorski, Shelia and Thomas Pozorski, 1987, *Early Settlement and Subsistence in the Casma Valley, Peru*. University of Iowa Press, Iowa City.
- Pozorski, Thomas, 1976, El complejo de Caballo Muerto; los frisos de barro de la Huaca de los Reyes. *Revista del Museo Nacional* 41: 211–251.
- Proulx, Donald A., 1985, *An Analysis of the Early Cultural Sequence in the Nepeña Valley of Peru*. Research Report, No. 25, Department of Anthropology, University of Massachusetts, Amherst.
- Quilter, Jeffrey, 1985, Architecture and chronology at El Paraiso. *Journal of Field Archaeology* 12: 279–297.
- Ravines, Rogger, 1984, La formación de Chavín: imágenes y símbolos. *Boletín de Lima* 35: 27–45.
- and William H. Isbell, 1975, Garagay: sitio ceremonial temprano en el valle de Lima. *Revista del Museo Nacional* 41: 253–275.
- Reichel-Dolmatoff, Gerardo, 1975, *The Shaman and the Jaguar*. Temple University Press, Philadelphia.
- Reinhard, Johan, 1985, Chavín and Tiahuanaco: a new look at two Andean ceremonial centers. *National Geographic Research* 1 (3): 345–422.
- Renfrew, Colin, 1982, Polity and power: interaction, intensification and exploitation. In *An Island Polity: The Archaeology of Exploitation in Melos*, pp. 264–290. Cambridge University Press, Cambridge.
- Rick, John W., 2005, The evolution of authority and power at Chavín de Huántar, Peru. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin J. Vaughn, Dennis Ogburn and Christina A. Conlee, pp. 71–89. Archaeological Papers of the American Anthropological Association, No. 14, Arlington, VA.
- , Silvia Rodríguez Kembel, Rosa Mendoza Rick and John A. Kembel, 1998, La arquitectura del complejo ceremonial de Chavín de Huántar: documentación tridimensional y sus implicancias. *Boletín de Arqueología PUCP* 2: 181–214. Pontificia Universidad Católica del Perú, Lima.

- Roe, Peter, 1982, *The Cosmic Zygote: Cosmology in the Amazon Basin*. Rutgers University Press, New Brunswick.
- Rosas, Hermilio and Ruth Shady, 1970, *Pacopampa, Un Centro Formativo de la Sierra Norperuana*. Seminario de Historia Rural Andina. Universidad Nacional Mayor de San Marcos, Lima.
- _____, and Ruth Shady, 1974, Sobre el período formativo en la sierra del extremo norte del Perú. *Arqueológicas* 15: 6–35.
- Rowe, John Howland, 1962, *Chavin Art: An Inquiry into its Form and Meaning*. Museum of Primitive Art, New York.
- Salazar-Burger, Lucy and Richard L. Burger, 1983, La araña en la iconografía del Horizonte Temprano en la costa norte del Perú. *Beitrag zur Allgemeinen und Vergleichenden Archaeologie* 4 (1982): 213–253. Bonn.
- Shady, Ruth, 1997, *La Ciudad Sagrada de Caral-Supe en los Albores de la Civilización en el Perú*. Universidad Nacional Mayor de San Marcos, Lima.
- Sherbondy, Jeanette, 1982, El regadío, los lagos y los mitos de origen. *Allpanchis Phuturinga* 20: 3–32.
- Silva, Jorge Elias, 1978, Chavín de Huántar: un complejo multifuncional. *Series Investigaciones*, No. 1. Gabinete de Arqueología, Universidad Nacional Mayor de San Marcos, Lima.
- _____, 1998, Una aproximación al Periodo Formativo en el Valle del Chillón. *Boletín de Arqueología PUCP* 2: 251–268. Pontificia Universidad Católica del Perú, Lima.
- Tello, Julio C., 1923, Wira-Kocha. *Inca* 1 (1): 93–320 and 1 (2): 583–605.
- _____, 1930, Andean civilization: some problems of Peruvian archaeology. *Proceedings of the 23rd International Congress of Americanists*, pp. 259–290. New York.
- _____, 1934, Origen, desarrollo y correlación de las antiguas culturas peruanas. *Revista de la Universidad Católica del Perú* 2, No. 10: 151–168.
- _____, 1942, Origen y desarrollo de las civilizaciones prehistóricas andinas. In *Actas y Trabajos Científicos del 27 Congreso Internacional de Americanistas*, Tomo I, pp. 589–720. Lima.
- _____, 1943, Discovery of the Chavin culture in Peru. *American Antiquity* 9 (1): 135–160.
- _____, 1960, *Chavin. Cultura Matriz de la Civilización Andina, Parte I*. Publicación Antropológica del Archivo “Julio C. Tello”, Universidad Nacional Mayor de San Marcos, Lima.
- Thompson, Donald E., 1962, Additional stone carving from the north highlands of Peru. *American Antiquity* 9: 245–246.
- Topic, John R. and Teresa Lange Topic, 1997, Hacia una comprensión conceptual de la guerra andina. In *Arqueología, Antropología e Historia en los Andes. Homenaje a María Rostworowski*, edited by Rafael Varón and Javier Flores, pp. 567–590. Instituto de Estudios Peruanos, Lima.
- Urton, Gary and Anthony F. Aveni, 1983, Archaeoastronomic fieldwork on the coast of Peru. In *Calendars in Mesoamerica and Peru. Native American Computations of Time*, edited by Anthony F. Aveni and Gordon Brotherston, pp. 221–234. BAR International Series, 174. Oxford.
- Vasquez de Espinoza, Antonio, 1948, Compendio y descripción de la indias occidentales (1629). In *Miscellaneous Collections*, Smithsonian Institution, Washington, D.C.
- Wallace, Dwight, 1962, Cerrillos: an early Paracas site in the Ica Valley, Peru. *American Antiquity* 27: 303–314.
- Watanabe, Luis, 1976, Sitios Tempranos en el Valle de Moche (Costa Norte del Perú). Ph.D. dissertation, Universidad Nacional Mayor de San Marcos, Lima.
- Werbner, Richard, 1977, *Regional Cults*. Academic Press, New York.
- Williams, Carlos, 1971, Centros ceremoniales tempranos en el valle de Chillón, Rimac y Lurín. *Apuntes Arqueológicos* 1: 1–4. Lima.
- _____, 1985, A scheme for the early monumental architecture of the central coast of Peru. In *Early Ceremonial Architecture in the Andes*, edited by Christopher B. Donnan, pp. 227–240. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, and José Pineda, 1983, La arquitectura temprana en Cajamarca. *Gaceta Arqueológica Andina* 1 (6): 4–5.

The Mochicas

LUIS JAIME CASTILLO BUTTERS
AND SANTIAGO UCEDA CASTILLO

INTRODUCTION

The Mochicas (also called the Moche) developed as independent and interacting polities in the northern valleys of coastal Peru between AD 200 and 850 (Figure 36.1). As with most coastal societies, the Mochicas can be understood as a truly successful adaptation to the coastal environment, where maritime resources were combined with an advanced agriculture based on irrigation technology. The large, northern, multi-river Piura, Lambayeque and Jequetepeque valleys contrast with the much smaller southern Chicama, Moche, Virú and Santa valleys. This influenced historical processes, which were quite distinct, and are only now coming into focus as a result of long-term archaeological research projects.

The Mochicas inherited a long cultural tradition, quite distinct from other traditions in the Central Andes. From the precocious coastal societies of the Late Preceramic through to Cupisnique (Chavin's coastal spin-off), and into a number of small and locally constrained societies such as Salinar, the Mochica tradition experienced a history of success and failure, adaptation and environmental catastrophe, technological mastery in metallurgy and irrigation, and great achievements in art and religious architecture. But because the Mochicas were not one but many independent polities not all achievements, nor every trait or characteristic – be it art or technology – can be attributed to the whole of the Mochicas. The distribution of Mochica cultural features varies from time to time, as do some of their regional expressions.

Also, it is obvious that the Mochicas were not alone on the north coast, but interacted throughout their history with people of local, more common traditions such as the Virú (also called Gallinazo) and probably even Salinar. The Mochicas themselves apparently arose from this old and quotidian substratum when large-scale irrigation technology created a new source of wealth. To a lesser degree, but nevertheless important for their cultural

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008



Figure 36.1. Map of the north coast of Peru with valleys and major Mochica sites indicated. (Luis Jaime Castillo)

configuration and identity, the Mochicas interacted with societies that flourished at the same time, such as Recuay in the neighboring highland Callejón de Huaylas, Cajamarca and Chachapoyas in the northern highlands, and Vicús on the far north coast.

All knowledge about the Mochicas is based on archaeological research and even though there is a great deal of continuity with their successors, the Lambayeque and Chimú, and even with modern coastal societies, sharp differences and cultural disruptions are evident. The story of the Mochicas, thus, is the story created by the archaeology done at Mochica sites, the ideas of the researchers who have worked in the region for the last

one hundred years, and the materials that have become available through field research and museum collections. The intellectual history of north coast archaeology has molded our understanding of ancient Mochica society, and future research will continue shaping and reshaping it.

In the last twenty years Mochica research has been one of the most popular fields of investigation in the Central Andes, with many long-term projects at sites such as Sipán (Lambayeque Valley), Huaca del Sol-Huaca de la Luna (or, the Huacas of Moche, Moche Valley), San José de Moro (Jequetepeque Valley), Dos Cabezas (Jequetepeque Valley) and El Brujo (Chicama Valley), conducted by both Peruvian and international research teams. The astonishing amount of information produced and being generated by this current research makes it almost impossible to write an accurate and up-to-the-minute account of what is going on, or more properly, what went on with the Mochicas. Even by the time this volume is published, and certainly a few years from now, we are sure that archaeological understanding of the Mochicas will have changed.

MULTIPLE PATHWAYS TO THE ORIGINS AND DEVELOPMENT OF THE MOCHICA STATES

In spite of what is commonly affirmed, Andean archaeology still conceives of the development of political systems as linear and unidirectional processes. Complexity and, ultimately, political evolution leading to the formation of states is seen simply as a cumulative, and at times, unavoidable process. Societies accumulated institutions and roles, legal systems and social divisions that led them from fragmented and regionally based polities (chiefdoms), to centralized and hierarchical states. The increase in complexity is seen merely as the aggregation of more layers of institutional components, where taxation replaces tribute, bureaucrats take the functions that before were in hands of kinship-based authorities, and state-controlled production replaces local manufacture. Change comes both from internal and external sources. Internally, change is motivated by the accumulation of small adaptations and “mutations” within the system. It is historically motivated by the circumstances of a given society attempting to maintain a status quo in a changing social and natural environment, and by apparently innocuous and cumulative changes, such as those that affect the evolution of artistic styles. Externally provoked change is perceived as being more abrupt, as environmental disruptions or foreign threats; thus it is a disruption of the developmental tendencies of the society. But, as we have learned, exogenous forces of change, even when catastrophic, such as ENSO (El Niño) rains or foreign invasions, can seldom be the only explanation for cultural and social change. More frequently external influences take the form of commercial interactions or ideological influences.

Sustained archaeological research has demonstrated that the reality of societies in the past is far more complex than any model or theory can predict, particularly because it is quite difficult to reduce a historical process that lasted more than half a millennium to a single description. The past is clearly not merely a reflection of the present, or of conditions that describe a more primitive state of affairs. Flexibility—in the sense of images that can fit more variability than regularity, where individuals do not necessarily follow or lead, where negotiation is more likely than domination or resistance—seems to be the way to understand the evolution of societies. The approach we advocate for studying the Mochicas takes into account singular or specific development, difference in regional expressions, and multiple paths that lead to the same result.

Rafael Larco Hoyle, the founder of north coast archaeology, conceived of the Mochicas as a single, unified and centralized society that originated in the Moche and Chicama valleys (Larco 1945). The Mochicas had a single capital, the Huaca del Sol-Huaca de la Luna site, with an urban center between the two monuments, and from which an omnipotent elite ruled the entire north coast, combining coercion and conviction, military power and a powerful ideology based on elaborate religious liturgy, temples, and ceremonial artifacts that legitimized the dominant regime. A unified Mochica society could only have had a single developmental sequence, in which the extension of the state first grew steadily to control the valleys north and south, and then declined, losing control of these territories until finally it was subsumed by a foreign power. A unified developmental sequence would also translate into increasing complexity of its institutions, scope and use of technologies.

Irrigation and metallurgy, two of the most advanced technologies, grew in impact and scope. To sum up all these tendencies, Larco proposed the evolution of fine Mochica ceramics through five consecutive phases (Larco 1948). Mochica pottery is incredibly realistic and rich in images of deities interacting in myth and ritual, as well as humans performing all sorts of activities, religious and mundane. This iconography has been the ultimate source of information about this society, but its developmental change also was the means for timing the events that marked Mochica history (Larco 2001). It has taken roughly seventy years to learn that Larco was partially wrong, and that not all phenomena, be they the origin, development or collapse, the use of technologies, the artistic and material canons, and even the ritual practices, were as homogeneous as he had thought. In this heterogeneity rests the clue for unraveling the mysteries of Peru's ancient north coast societies.

A unified society had to have been the result of a single developmental process, so, for Larco, the Mochicas were the heirs to the old and prestigious Cupisnique tradition, the formative civilization to all north coast cultures. Cupisnique, also known as coastal Chavín, had evolved into Mochica in the first centuries of the Common Era, through the intermediation of cultures such as Salinar and Virú (Larco 1944, 1945). Larco was never specifically interested in mechanisms responsible for the origins of the Mochicas, but instead studied them from the standpoint of the development of their material culture, particularly the ceramic sequences (Larco 1948). Mochica ceramics display, in forms and decorative motifs, evidence that many Cupisnique features passed smoothly from one to the other, implying a cultural continuum. Whether this transition happened once and in only one place, or on multiple occasions and in many locations generating multiple derivations, was not addressed by Larco. For him, once the culture originated, the Mochicas followed a single line of development, growing in size, and becoming more complex and refined in every aspect of life, particularly the arts. But the Mochicas were not alone. At the same time they were developing in the Moche Valley, another complex society, the Virú or Gallinazo, was developing in the Virú Valley, only 40 km south of the Huaca del Sol-Huaca de la Luna site. The Virú phenomenon was, in Larco's interpretation, slightly earlier than Mochica, even closer to the Cupisnique origin, but limited to the southern valleys that eventually were incorporated into the Mochica realm through military conquests (Larco 1945).

Shortly before Larco's death in 1966, Early Moche ceramics began to show up in great quantities in the far northern valley of Piura, in conjunction with the "unsophisticated" Vicús style (Larco 1965, 1967). Larco's interpretations had not predicted this co-occurrence, and thus it contradicted his ideas. The Vicús phenomenon, within which the Mochica evidence had been found, contained a strange *mélange* of ceramic styles, including Virú and Salinar. It seemed possible that the far northern region of Piura could have been an area of interaction for all north coast cultural traditions (Makowski 1994). But the

Mochica-Vicús people were much more complex than expected. For instance, their metallurgy was impressive when compared to what was then known of Mochica metallurgy (Jones 1992, 2001). In addition, the Moche-Vicús ceramic sequence was quite different than the one Larco had postulated for the south (Figure 36.2). Makowski (1994) has convincingly divided this Piura ceramic tradition into three phases, Early, Middle and Late (or Later) (Figure 36.2).

Early Moche-Vicús ceramics are of remarkable quality, resembling quite closely the finest Early Moche ceramics from the Jequetepeque Valley in the modeling and decoration of the pieces, in colors and surface treatments (Donnan 2002) (note that in referring to the ceramic phases and temporal periods the term *Moche* is more commonly used in English-language publications, although Larco called his phases *Mochica*). Following these beautiful Early Moche-Vicús ceramics, simpler and coarser ceramics developed in the Middle phases, Makowski's (1994) Vicús-Tamarindo A & B. Decorated Middle Moche-Vicús ceramics feature one dominant form: long necked bottles, with small side lugs, decorated with coarse lines employing purple paint. Iconographic motifs are reminiscent of Early Moche designs, although created with much less quality and care. These quite rare Middle Moche-Vicús wares were not followed by any Late Moche ceramics—it is as if the style had *drifted* away, becoming something quite different from Moche.



Figure 36.2. Stylistic chronology seriation of the Mochica stirrup-spout bottles of the Southern and Northern regions. (Luis Jaime Castillo)

In contrast to the Southern Mochica region, and contradicting Larco's sequence, no signs of Moche III and IV ceramics could be found in Piura following the elaborate Early Moche wares. While Larco saw in this ceramic style a probable origin for the Mochica, Lumbreras (1979) explained this anomaly as a colonial development. The Mochica from the core valleys of Moche and Chicama had founded a settlement in the far north, certainly for commercial purposes. The "Vicús abnormality" could not be explained under Larco's paradigm of centralized political unification. To complicate matters, an undetermined number of wealthy burials were found in Loma Negra, an elite cemetery in the core of the Vicús region. Even if we accept that the Mochicas could have established a colony in the distant north, it still made little sense to bury royals, or extremely wealthy individuals, so far away. Why not bring them back to the motherland for burial? In conjunction with these peculiar burials—regrettably not excavated archaeologically—Middle Moche ceramics took an unexplainable turn to low quality and poor decoration. These contradictions could not be resolved with the data available in the mid 1960s and would have to wait almost thirty years to be understood.

A second source of confusion and a new challenge to Larco's sequence and thesis of unification surfaced when Heinrich Ubbelohde-Doering's 1938 excavations of Mochica burials at Pacatnamú were published in 1983. This unique set of Jequetepeque burials contained pottery that was nothing like the Moche ceramics from the Larco Museum, which so precisely fit into the five-phase sequence. Not counting a few examples of southern style Moche V ceramics found in Burial MXII, Moche ceramics from Pacatnamú were much coarser, with higher than normal frequency of face neck jars. Furthermore, they were found next to unusual numbers of Virú style ceramics. Decorations were generally placed on the necks of vessels, and were not done with fine lines, but instead with thick lines. Clearly, Larco's five-phase ceramic sequence could not be used to date this collection. Donnan's excavations of a low class cemetery at the same site in the early 1980s produced a new collection of the same variety of ceramics, thus confirming the existence of a different sequence (Donnan and McClelland 1997).

The excavations of burials at Sipán (Lambayeque Valley) and La Mina (Jequetepeque Valley) in the late 1980s produced multiple examples of Early and Middle Moche ceramics and extraordinary metal jewelry that again challenged the hypothesis of a single origin and a single developmental sequence for the whole Mochica phenomenon. In both sites the ceramic collections were more similar to those found in Loma Negra (Piura Valley) and Pacatnamú (Jequetepeque Valley) than to ceramics found in the Moche Valley. Furthermore, the burials at these two sites, in addition to the burials at Loma Negra, contained remarkably wealthy individuals, presumably members of the royal families that had ruled their valleys. If there was evidence for royal houses in the three northern valleys, then the idea of a single, centralized government based at Moche's Huaca del Sol-Huaca de la Luna site was also questioned (Donnan 1988, 1990). It seemed that—at least during Early and Middle Moche times—royal families or lineages, and their corresponding burial grounds, had existed in at least four locations, each in different valleys.

The last and definitive piece of evidence to challenge the unified paradigm was found in the late 1990s in Christopher Donnan's excavations at Dos Cabezas and other sites in the lower Jequetepeque Valley (Donnan 2001). Donnan found burials that included remarkable Early Moche ceramics and metals, both of outstanding quality and design, in conjunction with domestic Virú ceramics. It seemed that Early Moche and Virú were two expressions of the same cultural phenomenon, one related to the elites and the other to the general populace (Christopher Donnan, personal communication).

Considering all the evidence, it became clear that Larco's five-phase ceramic sequence was not working in the northern north coastal valleys. There was a notable absence of Moche phases II and IV wares, with no cases of flaring bowls and portrait vessels reported. Even the phases that appeared to be represented in the far north, Moche I, III and V, showed remarkable differences from the southern ceramics with which the sequence had been built (Castillo 2003). Early Moche ceramics, found in Loma Negra and Dos Cabezas, were much more complex in the north than in the south, while Late Moche ceramics, found primarily in San José de Moro, showed a reduced iconographic repertoire, and were accompanied by polychrome wares (Figure 36.2). In synthesis, ceramic differences are not only in form and iconographic content, but also overall quality (Castillo 2000).

Based on the mounting evidence it was obvious that Larco's hypothesis of a single Mochica origin, a centralized political organization and a common developmental sequence was untenable. At best, centralized models postulated by Larco (2001), Ford (1949), Willey (1953), Strong (1952) and others described only part of what might have happened in the Southern Mochica valleys, but even for this region old models had to be carefully reexamined. For the Southern Mochica realm, at this point, it seems more plausible that there were several origins in different parts of the Moche and Chicama valleys, harmonized in their developments by means of elite integrating ritual practices. The harmonization effect of a shared ceremonialism could have resulted in the evening out of different speeds of development, homogenizing cultural traits among the ruling elites (Christopher Donnan, personal communication). But harmonization did not necessarily produce identical developments, or even identical material culture. There might have been huge differences in the way artifacts were produced and in their iconographic content that have, so far, gone unnoticed for lack of a proper theoretical framework. It is likely that throughout their seven hundred years of existence, the Southern Mochicas experienced periods of more or less centralization and fragmentation; and that at some points their centralized political system broke into regional polities coordinated merely by means of ritual practices, centrally celebrated in ceremonial centers like Moche's Huaca del Sol-Huaca de la Luna site. Social, political and economic developments in each region and locality could have been different, at least during periods of fragmentation. Nevertheless, in the Southern Mochica realm, ceramic sequences and, in general, the evolution of all forms of material culture, follows more closely the model proposed by Larco, particularly during phases III and IV, when more centralization seems to have been present. Moche V, the late and decadent phase in Larco's view, could have been a regional phenomenon of the Chicama Valley, that developed there once this valley broke away from the Southern Mochica core, and then expanded south to a stronghold in Galindo (Bawden 1977; Lockard 2005) and north to Pampa Grande (Shimada 1994).

Considering all the preceding arguments it seems more likely that the rise of the Mochicas was a case of multiple origins, happening in several different locations of the north coast, at different moments and most likely generated by different preconditions. In all cases the Mochicas appear to have evolved from their ancestors, a post-Formative Period tradition identified either as Virú or Salinar, first as an elite tradition that branched out from the main cultural component. It seems likely that the general setting for this diversification within the north coastal societies was the extension of agricultural fields due to better and more reliable irrigation technologies. Eling (1987) places the extension of irrigation systems in the Jequetepeque Valley in this early period, and although later societies would have made irrigation more efficient, the original extension would have created discrete new opportunities and wealth. Larger and more advanced irrigation canals would have produced higher agricultural yields and thus opportunities for personal enrichment.

A new and wealthier elite could easily develop in this environment, creating opportunity and need for social differentiation, as well as a higher dependency on culturally produced resources. Ceremonialism, the need for bigger and more elaborate temples, and the development of more refined ritual objects and paraphernalia all materialized an ideology that needed to emphasize social division and status differentiation (Earle 1987, 1997). The Mochicas developed at this time, under these opportunities and circumstances. It is likely that at first, during the Early Moche Period, only the upper levels of society could be regarded as Mochica, the rest of the population being of the Virú or Gallinazo tradition. But as time passed many of the traditions, rituals, and artifacts originally developed for the elites, and surely produced by elite craftsmen, trickled down to lower social strata, eventually to influence and shape all aspects of society.

But this process need not have been the same in every valley or region, nor was it conditioned by the same factors. It is likely that in some regions the process could have been motivated, or even accelerated, by the influence of what was going on in neighboring polities. It is also likely, as absolute dates point out, that the process started and ended in the time span of three centuries. It is not true, either, that all north coast societies had to follow in this same process. Both in the northern Lambayeque Valley (Shimada and Maguiña 1994) and in the Virú Valley (Bennett 1949) the Virú tradition did not take the Mochica direction; quite the contrary. In both places Virú culture seems to have flourished until the Mochicas incorporated them to their territory, arguably by military means (Willey 1953). Finally, the processes that led to the rise of the Mochicas do not seem to have had the effect of articulating all these regions under a single political authority. It is more likely that each valley, and even sectors within them, followed similar developmental paths, never achieving universal political centralization.

The rise of the Mochicas, having transpired in different places and times, and without central political coordination, should have led to the development of completely independent traditions, making each process a case of cultural drift. This diversifying trend seems to have been the case in Piura, where an early Mochica tradition drifted away to become a cultural development in no way resembling that of the Mochica from either north or south. At the same time the other regions—Lambayeque, Jequetepeque and Moche-Chicama—achieved a high degree of homogeneity, to the point that we can identify all of them as Mochica. It is likely that inter-polity mechanisms existed that prevented cultural drift and differentiation. We are inclined to believe that the integration and harmonization factor was elite rituals of power that incorporated the rulers and their courts to a common, shared tradition, and that promoted interactions that included social exchanges and sharing of materials and technologies. Elites in the three core regions (Lambayeque, Jequetepeque, and Moche-Chicama) must have been connected, particularly during the early and late phases when we see the most shared elements. Through these processes the Mochicas developed independently, but always interconnected and interacting, sharing knowledge and ritual practice, but facing different challenges and reacting in different ways.

POLITICS, POWER, AND LEGITIMACY IN THE FIRST STATE-LEVEL SOCIETIES OF THE ANDES: THE SOURCE OF MOCHICA SOCIAL POWER

As more data become available the nature of Mochica power starts to show more emphasis on ideology and on social relations than on coercion, military power, or even economic centralizations or dependencies. Following Mann's (1986) proposal for the study of power

as the combination of different sources, it is apparent that for the Mochicas power was configured as strategies that combined different sources depending on circumstances, historical backgrounds, traditions and resources. Thus, to discuss Mochica power is to study the ways in which different Mochica elites, in different political settings and times, and under distinct circumstances used ideology, economics, politics and coercion to configure strategies to gain control and legitimize their social position. Some of the things that we can be certain of are that the Mochicas were an elitist society, thus featuring social contradictions and unequal access to resources that were at any given time a source of social turmoil. Continuous and uninterrupted occupations of sites and long-term developmental processes, among other things, attest to the fact that Mochica power, in any of its configurations, was successful for long periods of time. The collapse(s) of the Mochicas ultimately can be attributed to the failure of the strategies that had worked for them, possibly because of bad calculations of circumstances and capacities, combined with unexpected and foreign factors (see final section).

Given the right circumstances any of four sources of power could have become preeminent over the other. *Military* power must have been critical to face a foreign threat or to take advantage of the opportunity to conquer a weak neighbor. *Economic* planning and control of resources must have been decisive in years of droughts or heavy rains. *Political* interactions between the elites of different regions must have been central in strategies of legitimacy. Marriages among royal houses must have been, at some points, more effective than military action. But among all sources of power the one that seems to be more permanent, and to which the other sources gravitate, is *ideology* and its materializations. The Mochicas invested more resources in constructing and maintaining temples than any other infrastructure, and within these buildings they performed rituals that, according to iconographic evidence and archaeological data, required the investment of enormous amounts of resources. The production of ritual artifacts was one of the most prominent activities among the Mochicas and in relation to it technologies were advanced and commercial relations established. It was under ritual circumstances that war became ceremonial battle and taxation became a form of contribution for the wellbeing of society. The Mochica elites themselves became material expressions of their ideological system, impersonating the principal deities and supernatural beings in ritual performance (Donnan and Castillo 1994; Alva 2004).

THE MOCHICAS OF THE NORTH AND THE MOCHICAS OF THE SOUTH

Our discussion shows that Mochica polities originated in different valleys of the north coast at approximately the same time; that each followed a different developmental process, materialized in artifacts that changed through time following distinct evolutionary sequences; and that ritual and interactions between the elites of these polities seem to have made these processes convergent. In the early 1990s several researchers arrived at the conclusion that the Mochica realm could be divided in two distinct regions, Southern and Northern Mochicas, each one corresponding, most likely, to a different political entity (Bawden 1994, 2001; Castillo and Donnan 1994; Donnan 1996; Kaulicke 1992; Shimada 1994).

The Southern Mochicas

The Southern Mochica region, originally comprising the Chicama and Moche valleys, was the location for the polity described by Larco (2001), the Virú Valley Project (Wiley 1953;

Strong and Evans 1952), the Chan Chan Moche Valley Project (Donnan and Mackey 1978), Donnan (1968, 1978) and several other projects/researchers. Larco's five-phase ceramic sequence describes properly the evolution of ceramic wares in this region, and the evolution of other representational systems, including mural paintings and metals (Larco 1948). The Huaca del Sol-Huaca de la Luna site of Moche has always been regarded as the capital of this region, an idea that remains unchallenged to this day. Recent work in the Huaca de la Luna (Figures 36.3, 36.4) and in the urban sector located in between the Huacas del Sol and la Luna have confirmed the site's status not only as the largest ceremonial center in the south but also as a residential, production and civic center (Uceda 2001, 2004; Chapdelaine 2002) (Figure 36.4). The El Brujo Complex and Moccollope, two large sites located in the Chicama Valley, could have been alternative capitals for their valley (Franco et al. 2001) or could have been regional capitals dependent on the Huacas of Moche (Larco 2001).

Starting in Moche III, the Southern Mochicas embarked on a southward expansion, incorporating the Virú, Chao, Santa and Nepeña valleys. The Mochicas' aim seems to have been the control of the lower Santa, the only coastal valley that has a year-round, reliable water supply. Here, and to a lesser degree in the other three valleys, the Mochicas developed new lower valley agricultural fields based on a more efficient use of irrigation technology (Donnan 1968; Wilson 1985). Chapdelaine's work in El Castillo de Santa and Guadalupito has confirmed that the Mochicas in Santa were almost identical to the Mochicas of Moche, at least in their material culture and in their construction technology (Claude



Figure 36.3. Iconographically complex murals at Huaca de la Luna, Moche Valley: detail of the western wall of the corner room in the last building of Huaca de la Luna, where a complex theme of the Mochica cosmos is developing. (Santiago Uceda)



Figure 36.4. Recreation of the Huaca de la Luna urban complex, Moche Valley, during its last phase of occupation. (Santiago Uceda)

Chapdelaine, personal communication, 2004). South of these valleys we find a limited Mochica presence, of a different nature, more likely to have been functioning as enclaves or commercial posts. In all these regions the Mochicas encountered local cultures of the “Virú” tradition, that were gradually incorporated to the Mochica realm, but continued with the production of their own material culture while incorporating an increasing number of the Mochica cultural elements.

Due to this expansionist process it is likely that the Southern Mochicas achieved a high degree of centralization and that a powerful state crystallized at the Huacas of Moche site. It is likely that its Lords had control of all their territory through an administration based on a settlement pattern of subsidiary valley capitals and local centers, through a tight elite control of the territory and centralization of its resources. It is evident that in this process, religion and ritual played increasing important roles, with ceremonies such as ritual combats (Bourget 2001) and sacrifice of defeated warriors (Bourget 2001; graphically illustrated in Donnan 1988: 552–553) that emphasized the extreme power of the rulers and their control over their territory.

In spite of the evidence in favor of a centralized Southern Mochica state, several incongruencies tarnish the otherwise monolithic hypothesis. Work by Bourget in Huancaco, the apparent Mochica capital of the Virú Valley, has revealed that this site, while sharing many architectural characteristics with the Huacas of Moche, has little resemblance in terms of its artifactual components (Bourget 2003). Huancaco ceramics are quite different from ceramic forms and styles present in the Huacas de Moche site, resembling more closely

the Early Moche ceramics. It is possible that an independent “Mochicoid” state—that is, a social and political organization that shared many aspects with standard Mochica culture, but reinterpreted in local terms—existed in the Virú Valley prior to the expansion of the Mochicas to this valley, or that an independent “Mochica of Virú” polity coexisted with the expansive Mochicas who controlled the valley.

The second incongruence is the origin and extension of the Moche V polity. The occupation of Huaca de la Luna, featuring Moche IV ceramics, seems to extend well into the AD 800s with no occurrences of Moche V wares on site (Uceda 2004; Chapdelaine 2003). In the meantime, Moche V wares are quite common in Galindo, dating back to AD 700, with little or no occurrences in the 800s (Lockard 2005). The distribution of Moche V ceramics appears to be restricted to the Chicama Valley, where Larco collected most of the specimens now housed in the Larco Museum; to the site of Galindo on the north bank of the Moche Valley; and to some odd contexts reported in and around the Santa Valley (Donnan 1968; Pimentel and Paredes 2003). It is our impression that the Moche V polity was restricted mainly to the Chicama Valley and that it evolved only after the fragmentation of the Southern Mochica into two polities (Castillo 2003). Further research in the Chicama Valley should prove or falsify this hypothesis.

The Northern Mochicas

The Northern Mochica region comprised three valley systems: 1) the upper Piura Valley, around the Vicús region; 2) the lower Lambayeque Valley system, comprising three rivers: La Leche, Reque and Zaña; and 3) the lower Jequetepeque Valley system, that includes the Chamán and Jequetepeque drainages. The Piura Valley, as argued above, was fully part of the Mochica phenomenon only during its Early Moche, or Early Moche-Vicús phase, developing non-Mochica traditions during the Middle and Late Moche phases. In contrast to all the other regions, Mochica occupation in Piura is not located in a coastal setting with access to maritime resources and focused on lower-valley irrigation agriculture, but in a fertile enclave up-valley, thus adapted to, and exploiting a quite distinct environment.

The Piura Valley had a brief yet visible Mochica occupation centered around the region of Chulucanas, where the Vicús developed. The Mochicas and the Vicús seem to have coexisted, as most Moche ceramics were reported coming out of deep shaft tombs in conjunction with wares of the Vicús tradition (Makowski 1994). A small funerary mound at Loma Negra contained several rich burials from which looters removed a plethora of metal objects, including crowns, nose ornaments, bells, and adornments for elite garments (Jones 1992, 2001). Although no contextual information is available, it is clear that the Loma Negra burials belonged to royal individuals, analogous in status and identities to those buried at Sipán (Alva 1998 *inter alia*) and La Mina (Narváez 1994).

Interpreting the Mochica presence in Piura has been a riddle for quite some time now. Lumbreras (1979) argued that the Mochicas had been a commercial colony in Piura, assuring themselves access to precious Ecuadorian resources such as *Spondylus* shells and gold. Makowski (1994) argues in favor of a multiethnic society, a point of encounter of several north coast traditions where the Mochicas coexisted and, apparently, shared their territory with other groups. It is also possible that the Mochicas from Piura were none other than Vicús elites engaging in the same transformation process as the Virú or Gallinazo people of Jequetepeque, thus creating an elite material culture, with an iconography and style homologous to the one in use at the royal centers of Lambayeque and Jequetepeque. In any case, from these auspicious Early Moche origins, whether a colony, a component in a

cultural melting pot or an elite culture, the Mochicas from Piura developed into something quite different from their southern relatives. The reasons for this cultural drift are not clear, and in actuality the archaeological record has not been analyzed from this standpoint. It is likely that the Mochica elites from Piura lost or ceased contact with the southern polities, or failed to impose their cultural canons, and culturally drifted away.

The Lambayeque and Jequetepeque valleys were the venues for the development of the Northern Mochicas throughout the Early, Middle, and Late Moche phases. Due to their geographic and environmental differences, in each valley the process took on distinct characteristics. In terms of agricultural land and available water, each one of these two valley systems is equivalent to the extension of several of the Southern Mochica valleys put together (Shimada 1999). Consequently, internal or intra-valley interactions are much more influential than inter-valley relationships. There is little or no evidence that either of these valleys attempted to overcome the other, or challenge the power of the Southern Mochicas. Quite the contrary, in terms of territory, in both regions the objective seems to have been the incorporation of new territories through larger and more efficient irrigation systems. In neither case does the limit of the irrigated area seem to have been reached, thus there seems to have been no need to engage in inter-valley conflicts to extend land holdings and gain access to more primary resources (staples).

The Lambayeque Valley system was, during Middle Moche times, the seat of the Lord of Sipán (Alva 2001: 243) and possibly of other small Mochica kingdoms. During Late Moche times the capital of the Pampa Grande state was located on its southeastern side. Yet our knowledge of how the Mochicas developed in this valley is quite incomplete due to lack of field research. Almost all the known Mochica sites in Lambayeque are located on the south side of the valley, on the banks of the Chancay-Reque River (Sipán, Saltur, Pampa Grande, Santa Rosa) and the Zaña River (Cerro Corbacho, Ucupe). The northern section, irrigated by the La Leche River, seems not to have been occupied by the Mochicas, but by local Virú or Gallinazo populations (Shimada and Maguiña 1994). Only two sites, Sipán and Pampa Grande, have been studied intensively enough to reveal significant aspects of the organizational principles employed by the Mochicas of Lambayeque. Sipán has shown us unexpected characteristics of Mochica leadership and wealth, particularly the funerary treatment of higher status individuals in Mochica society (Alva 2001). What archaeologists see in these burials is an image of great social and political complexity, with a sizable body of higher elite consisting of rulers and high officers of different statuses who were bestowed with the right to accompany their lords after death. All were costumed in the regalia and garments that they used in life to perform their ritual roles in religious or civil liturgies. In all cases a special link was established between the individuals and the objects that defined their function and ceremonial role that, evidently, continued after death. The officers and their “objects” developed an “inalienable relation,” such that these objects, produced for them under special conditions and times, would not be appropriate for others. Thus, they died with their owners, were buried with them, and would still function with them in the afterlife to continue providing for the society of the living.

Sipán corresponds to the Middle Moche phase in the Lambayeque Valley, a time of probable expansion and growth. Saltur, the other monumental complex apparently contemporary with Sipán, has not been excavated. One possible piece of evidence is that both Sipán and Saltur were built next to the Collique canal, the inter-valley irrigation system that provides water to the lower Zaña Valley, to the south. It is likely that the wealth of Sipán was connected with the expansion of the agricultural lands after incorporating the Zaña Valley.

Pampa Grande, one of the largest Mochica sites anywhere, occupies more than 400 ha at the neck of the Chancay River, where the irrigation canals have their intakes. The site was laid out and built in a short period of time, and combines an enormous ceremonial complex, including Huaca Fortaleza (the tallest ceremonial platform in Peru), storage facilities, specialized workshops, shrines of different sizes and kinds, living quarters and corrals (Shimada 1994). It is unlikely that the site gradually grew to its actual proportions, but instead it seems to imply a population-reduction strategy. People from all over the Lambayeque Valley appear to have been concentrated at Pampa Grande for purposes and reasons that remain uncertain. However, this social and political experiment lasted only a short period, and by the end of the seventh century the site had been abandoned. Shimada argues that Pampa Grande, where "Gallinazoid" ceramics are quite frequent, was developed because the Mochicas forced the Gallinazos to live there and work for the Mochica state, in conditions analogous to slavery (Shimada 1994). Social tensions within the site erupted late in the occupation, when a popular revolt might have burned the temples and ousted the elites. The biggest paradox about Pampa Grande, nevertheless, is the preeminence of Moche V ceramics, with identical forms and decorations to the ceramics from the Chicama Valley and Galindo. What were the Moche V doing in Pampa Grande, and why do we have a discontinuous distribution of this style? Moche V is almost nonexistent in the Jequetepeque Valley that lies between Chicama and Pampa Grande.

The Mochica occupation of the Jequetepeque Valley system has been the subject of intensive and extensive research, making it the one of the best known regions of the north coast. Multiple valley-wide surveys have been conducted and excavations have been carried out in numerous sites. The most prominent Mochica sites excavated in the Jequetepeque Valley are Dos Cabezas, La Mina, and Pacatnamú, located close to the ocean; and Cerro Chépén, Portachuelo de Charcape, San Idelfonso and San José de Moro, in the interior, northern part of valley, corresponding to the Chamán River drainage. Stratigraphic excavations conducted in San José de Moro have produced a ceramic sequence of three phases, Early, Middle and Late Moche, constituting a tradition quite distinct from the one described by Larco. Only the most elaborate elite ceramics resemble forms and decorations found in the south, while domestic ceramics show a completely different assemblage of forms, technique and decorations. Differences between the Jequetepeque and Southern Mochica traditions are most obvious in funerary practices, where rich chamber burials with niches, middle-range boot-shaped shaft tombs, and poor and shallow pit tombs are the typical forms, in contrast to small chamber and pit burials common in the south. In spite of these differences the Mochicas from Jequetepeque shared with their southern neighbors a common religious liturgy, and participated actively in the core Mochica ceremony, the Sacrifice ceremony (Alva and Donnan 1993; Castillo 2000). Elite tombs found in San José de Moro featured burials of high-status females surrounded by artifacts associated with the Sacrifice ceremony, and particularly to the female role or figure in it, commonly called the Priestess (Donnan and Castillo 1994; Figure 36.5).

The political configuration of the Jequetepeque Valley describes a development process where evidence of political centralization competes with evidence for fragmentation and factionalism. A model of gradual development and decline cannot explain the evidence, which seems to better suit a model of political oscillation, where periods of fragmentation were followed by periods of more centralization to take advantage of opportunities or circumstances brought about by the environment or by inter-polity interactions. In the Early Moche phase a small and centralized state centered in Dos Cabezas developed on the margins of the Jequetepeque River. By Middle Moche times population pressure should



Figure 36.5. M-U41, one of the Priestess burials excavated in San José de Moro, Jequetepeque Valley. (Luis Jaime Castillo)

have forced the Mochicas to expand their territory into the adjacent northern and southern deserts. The southern sector, which is now the San José and San Pedro districts, was developed through a single and centralized irrigation system. The northern sector, the Chamán drainage, was irrigated by a set of four irrigation canals that in effect create four independent jurisdictions: Chanfán, Guadalupe, Chapén, and Talambo. It is likely that the expansion of the irrigation system created autonomous regions that eventually became independent polities. These polities seem to have engaged in factional competition and developed hostile relationships that required self-defense, and thus the construction of defensive sites such

as Cero Chepén, San Idelfonso, and Ciudadela-Cerro Pampa de Faclo. There are few signs that political integration was the norm among these northern Jequetepeque polities. Greater and lesser integration seems to have transpired at certain moments, taking advantage of opportunities or confronting needs and threats. Signs of interaction can be found in San José de Moro, where all these polities seem to have participated in regional ceremonial activities, and buried their elites. It needs to be stressed that in the northern Jequetepeque the process of political fragmentation seems not be an effect of a weakened state, unable to prevent its regions from gaining autonomy, but a foundational effect. Key to understanding the process of political configuration in Jequetepeque is the way the irrigation system was created, with autonomous and redundant components. Colonization of the northern Jequetepeque region seems to have been the result of an entrepreneurial faction and not a state-sponsored endeavor (Castillo ms.).

THE STRUCTURE OF MOCHICA SOCIETY

Mochica social organization has been studied through the analysis of domestic contexts, iconographic representations and burials. All three sources coincide in portraying a complex social organization comprising many divisions and segments, with groups that show a high degree of specialization, sexual and gender differentiations, clustering of individuals of similar status, and qualitative differences between social strata. In general terms three groups can be identified: the ruling elite, the commoners, and the poor. Mochica ruling elites—comprising males, females and children of royal lineages—were buried in royal tombs located in small funerary platforms, generally in chamber burials, surrounded by fine objects of metal, ceramics, semiprecious stones, and multiple retainer burials. Elite burials were not only rich and complex, they usually included multiple objects loaded with iconographic representations, and ritual paraphernalia including attires and instruments that allowed them to participate in ceremonies and to recreate mythical narratives. The burials of Mochica rulers at Sipán, and of Priestesses at San José de Moro are some of the most conspicuous examples of Mochica ruling elites. Their household dwellings are usually large and well-fitted adobe constructions with multiple rooms, and can be located inside or in connection with temples. Mochica elites are conspicuously portrayed in portable and monumental art in leading roles, as military commanders, receiving offerings inside roofed structures, or as deities participating in mythical events and ceremonies. Funerary evidence and iconographic evidence coincide in presenting the elites with extremely elaborate costumes, including not only fine garments but many precious ornaments: crowns, feathers, nose ornaments, collars, bracelets, and multiple metal artifacts such as scepters, weapons, banners, and litters.

Below the royal elites was a fairly large social segment including individuals who were neither rich nor poor: the commoners. This segment represents the largest number of burials and households studied and within it we can observe a high degree of variability. Their burials are usually contained inside small niche chambers in the southern area, and in boot-shaped shaft tombs in the northern region. These can include multiple ceramics objects, even some with complex iconographic representations, but fewer metal objects. It seems that Mochica commoners had access to representations of ceremonies and myths, but could not participate in leading roles in their recreations. These burials frequently contain sets of objects related to specific crafts, for example textile production in the case of females, or metal work in the case of males. There seems to be an intentional representation

of the functional aspect of their identities at the time of burial. Commoner households are much smaller than the elite ones.

The Mochica poor are the least understood and studied. Donnan and McClelland's (1997) study of a fishermen cemetery in Pacatnamú and Bawden's (1994) excavations of small dwellings in the foothills of Galindo are examples of the lower class settings. In many cases the poor were treated in ways quite different from other Mochicas. For instance, in San José de Moro, the poor people, particularly women and children, were disposed of summarily in pit burials, with few or no associations and in conjunction with areas where they had been laboring in the production of chicha (maize beer). Their burials do not correspond—either in form, orientation of the body or disposition of the elements—to the funerary treatment of elites or commoners. Small children are quite abundant in these kinds of burials, as if children had not been conferred with the social status of their elders and were always treated as poor. In Pacatnamú, Donnan (1997) found a cemetery composed of 28 males, 27 females and 29 children of low status. Although burials here were more organized in terms of position and orientation, and most were even placed inside cane coffins, their associations show that relatively, these individuals had a very restricted access to goods and resources. Garments, in many cases, showed excessive wear, reducing them to rags with multiple patches. Low status houses, studied in Galindo and other sites, are narrow structures, built with stone walls and located on hill slopes, with limited access to resources and often separated from the rest of the community by walls. It is likely, though, that these low status houses are, in reality, refuge dwellings for the community in case of attack inasmuch as storage vessels, water containers, and piles of sling stones are frequently associated with these houses. It has been argued that the Mochica poor could have had closer relations with the Gallinazo tradition, or that they might even have been enslaved Gallinazo people (Shimada 1994). This assumption seems to be wrong given the new understanding of Gallinazo as the underlying cultural tradition, that is to say that all Mochicas were Gallinazo in their quotidian tradition, something that was more apparent among the poor.

Mochica social organization was not only complex but was divided by economic, functional, gender and age divisions. It has been argued that Late Moche was a time of social crisis, with multiple indications of social clashes that resulted in true revolts, and even the burning and destruction of elite Mochica symbols (Shimada 1994; Bawden 1996; Pillsbury 2001). Although social tension could have been worst during Late Moche due to climatic instabilities, it is quite evident that a society with such social gaps, exclusions, and divisions must always have been rife with social confrontation. Much of Mochica ideology is about legitimizing social differences and establishing roles that, although assuring sustenance, gave much to few and little to most.

COLLAPSES AND RECONFIGURATIONS OF THE MOCHICA POLITIES

In keeping with their multiple character, Mochica polities did not collapse all at once or for one single reason. Rather, the collapses (plural) of the Mochicas (also plural) are clearly complex processes that occurred throughout three hundred years and by a combination of factors. The outcomes of these terminal processes were reconfigurations of the north coast societies, first by quite peculiar cultural processes, such as that documented in San José de Moro's Transitional Period (Rucabado and Castillo 2003), and ultimately by the establishment

of two distinct regional cultures, Lambayeque, in the Northern Mochica region, and Chimú, in the Southern Mochica region. The environment (Shimada 1994; Moseley and Patterson 1992), foreign invasions (Larco 1945; Willey 1953) and internal instabilities brought about by social conflict (Bawden 2001; Castillo 2001; Shimada 1994) are frequently blamed for the demise of the Mochicas. Close scrutiny makes any of these arguments, by itself, weak and incomplete, particularly those that place the origin of change outside the society. Our position is that if there has to be a common reason for the demise of the Mochica polities it must be the failure of a power strategy based predominantly on the manipulation of materialized expressions of ideology. In all their polities, Mochica elites had connected their fates too tightly with the efficacy of ideology, the power of performance and representation, the production and exchange of ritual objects. For much of their history this strategy had been successful, allowing all Mochicas to grow and prosper, and by necessity it had to have been combined with other sources of power. But, starting in the seventh century AD it clearly did not work any more. Ideological discourse and materializations in rituals, monuments and artifacts, weakened by environmental instability and foreign threats, were unable to legitimate the structure of society, the unequal distribution of socially produced wealth and the monopoly that the elites had in the direction of society. The study of Late Moche sites such as Pampa Grande (Day 1978; Shimada 1994), Galindo (Bawden 1977; Lockard 2005) or San Idelfonso (Dillehay 2001; Swenson 2004) have produced quite differentiated pictures of the last days of the Mochicas. What follows is an account of the process as recorded in long-term occupation sites, the Huacas of Moche and San José de Moro, sites that not only account for the end of the Mochicas, but that place this process in a continuous occupation.

Excavations at Huaca de la Luna have revealed a peculiar configuration for the end of the Mochicas. Two occupational phases can be distinguished, the first one from the foundation to the year AD 600, and the second between AD 600 and 800. The first phase corresponds to the development and intensive use of Huaca de la Luna, the performance of the Sacrifice Ceremony, and multiple transformations of the monument. A clear emphasis is given to ritual performance and enormous resources are invested in the construction and transformation of the monument. In the urban center, the lower layers of the occupation also reveal an emphasis on the production and manipulation of ritual artifacts and on burials of individuals costumed as ritual performers. This emphasis ceased around AD 650 when Huaca de la Luna was almost closed and the Mochica population turned its attention to Huaca del Sol. The new building, produced in relatively little time and following a model of platform and ramp more common in the Northern Mochica region, marks a turn and transformation in practices and tradition. Mochica society in this second phase seems oriented to a more secular emphasis, with more attention placed on the production of household goods. We do not claim that this second occupational phase corresponds with a secular state, but that the tendencies towards secularity, more visible later on with Chimú, make their debut at this time (Uceda 2004).

The end of the Mochicas in San José de Moro, a ceremonial center and elite cemetery located in the northern Jequetepeque Valley, is quite dissimilar. It, too, implies the abandonment of Mochica traditions, particularly Mochica burial practices and ceramic styles, and conjecturably, of Mochica rituals that led to these burials and required these objects. Funerary practices and ceramics are two cultural features clearly associated with the Mochica elites, so their demise implied the interruption of their production. San José de Moro had been a regional ceremonial center where elites and populations at large from the whole Jequetepeque Valley gathered for ceremonial events. Great quantities of chicha

(maize beer) were produced and consumed, and when required, buried with the dead. The regional integration and coordination role of the site continued after the Mochicas vanished—chicha was still produced there in large quantities, and members of the elites were still buried there.

The collapse of the Mochicas in San José de Moro, in contrast to the collapse at Huaca de la Luna, is rather abrupt, even though the site was not abandoned, but was continually occupied during the Transitional Period when the local tradition was reconfigured. Relatively large quantities of foreign ceramics appear associated with local burials during the transition, including the Wari, Nievería, Atarco, Pativilca, Cajamarca in several phases, and Chachapoyas styles. They participated in the formation of a proper Transitional style, a sort of post Moche tradition with many formal characteristics that coalesced in Lambayeque and Chimú. Foreign ceramics were incorporated in local burials as a small external contribution that, most likely, emphasized a peculiar aspect of an individual's identity. But within the Jequetepeque Valley we can detect many distinct terminal processes. Wari ceramics, of excellent quality, are found almost only in San José de Moro, while Cerro Chepén exhibits what seems to be highland architecture (Rosas 2005). Other Late Moche sites, like San Idelfonso (Swenson 2004), or Portachuelo de Charcape (Johnson ms.), reveal a situation that seems to be more standard, that is to say, where the Mochica occupation ceased and the site was abandoned. These differences seem to be an outcome of the previously discussed fragmentary configuration of the valley, where each local polity was free to establish alliances and affiliations with local or foreign societies, and thus show different kinds and intensities of affinities in their artifactual compositions.

If the Mochica were, as Bawden has argued (2001), basically a political ideology, their collapse should have been the end of the efficacy of Mochica elite ideas and material expressions of the strategies of legitimization and control, of idiosyncratic ways of ritual performance, and of particularly Mochica social organization. However, life continued on the north coast after the Mochicas were gone: the irrigation systems that the Mochicas built continued functioning, as many do today, as did the technologies they had developed for making copper look like gold. Of all things Mochica, religion was the one thing most dramatically transformed, as it was probably—more than anything else—associated with the way the Mochicas had ruled the land. We do not agree with the idea that the Mochicas simply melted down into the Chimú or the Lambayeque, or that we can recognize them in their heirs. Rather, the Mochicas—as a system, as a way to control the land and give sense to society, as an explanation for the universe—collapsed and disappeared, their leaders failed and vanished, many of their settlements and temples were emptied and abandoned. The collapse of the Mochicas implies that a reconfiguration was needed to bring order back, to return legitimacy and wealth to the north coast of Peru (Baines and Yoffee 1998). Furthermore, the Mochicas are not the Chimú or the Lambayeque. We can not study one extrapolating from the other. Finally, societies, both past and present, do collapse.

REFERENCES

- Alva, Walter, 2001, The royal tombs of Sipán: art and power in Moche society. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 223–245. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- _____, 2004, *Sipán. Descubrimientos e Investigaciones*. Lima, Peru.
- _____, and Christopher B. Donnan, 1993, *Royal Tombs of Sipán*. Fowler Museum of Cultural History, University of California, Los Angeles.

- Baines, John and Norman Yoffee, 1998, Order, legitimacy and wealth in ancient Egypt and Mesopotamia. In *The Archaic State: A Comparative Perspective*, edited by Gary Feinman and Joyce Marcus, pp. 199–260. School of American Research Press, Santa Fe.
- Bawden, Garth, 1977, Galindo and the Nature of the Middle Horizon in Northern Coastal Peru. Ph.D. dissertation. Department of Anthropology, Harvard University. Cambridge, MA.
- , 1994, Nuevas formas de cerámica Moche V procedentes de Galindo, valle de Moche, Perú. In *Moche: Propuestas y Perspectivas*. Actas del Primer Coloquio sobre la Cultura Moche (Trujillo, 12 al 16 de abril de 1993), edited by Santiago Uceda and Elías Mujica. *Travaux de l'Institut Français d'Etudes Andines* 79: 207–221. Universidad de La Libertad - Trujillo, Instituto Francés de Estudios Andinos y Asociación Peruana para el Fomento de las Ciencias Sociales, Lima.
- , 1996, *The Moche*. Blackwell, Oxford.
- , 2001, The symbols of late Moche social transformation. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 285–305. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- Bennett, Wendell C., 1949, Engineering. In *Handbook of South American Indians, Volume 5, The Comparative Ethnology of South American Indians*, edited by Julian H. Steward, pp. 53–65. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Bourget, Steve, 2001, Rituals of sacrifice: its practice at Huaca de la Luna and its representation in Moche iconography. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 89–109. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- , 2003, Somos diferentes: dinámica ocupacional del sitio Castillo de Huancaco, valle de Virú. *Moche: Hacia el Final del Milenio*. Actas del Segundo Coloquio sobre la Cultura Moche (Trujillo, 1 al 7 de agosto de 1999), edited by Santiago Uceda and Elías Mujica, Tomo I, pp. 245–267. Universidad Nacional de Trujillo y Pontificia Universidad Católica del Perú, Lima.
- Castillo Butters, Luis Jaime, 2000, The sacrifice ceremony, battles and death in Mochica art/La ceremonia del sacrificio, batallas y muerte en el arte Mochica. In *La Ceremonia del Sacrificio. Batallas y Muerte en el Arte Mochica*. Catálogo para la exposición del mismo nombre. Museo Arqueológico Rafael Larco Herrera, febrero a agosto del 2000, Lima.
- , 2001, The last of the Mochicas: a view from the Jequetepeque Valley. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 307–332. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- , 2003, Los últimos Mochicas en Jequetepeque. In *Moche: Hacia el Final del Milenio*, Actas del Segundo Coloquio sobre la Cultura Moche (Trujillo, 1 al 7 de Agosto de 1999), edited by Santiago Uceda and Elías Mujica, Tomo II, pp. 65–123. Universidad Nacional de Trujillo and Pontificia Universidad Católica del Perú, Lima.
- , ms. (forthcoming), Ceramic sequences and cultural processes in the Jequetepeque Valley. In *The Art and Archaeology of the Moche*, Acts of the Fourth D. J. Sibley Family Conference on World Traditions of Culture (Austin, Texas, 15–16 November 2003), edited by Steve Bourget. University of Texas Press, Austin.
- and Christopher B. Donnan, 1994, Los Mochicas del norte y los Mochicas del sur: una perspectiva desde el Valle de Jequetepeque. In *Vicús*, edited by Krzysztof Makowski et al., pp. 143–181. Colección Arte y Tesoros del Perú. Banco de Crédito del Perú, Lima.
- Chapdelaine, Claude, 2002, Out in the streets of Moche: urbanism and sociopolitical organization at a Moche IV urban center. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 53–88. Kluwer Academic/Plenum Publishers, New York.
- , 2003, La ciudad de Moche: urbanismo y estado. In *Moche: Hacia el Final del Milenio*, Actas del Segundo Coloquio sobre la Cultura Moche (Trujillo, 1 al 7 de Agosto de 1999), edited by Santiago Uceda and Elías Mujica, Tomo II, pp. 247–285. Universidad Nacional de Trujillo and Pontificia Universidad Católica del Perú, Lima.
- Day, Kent C., 1978, Almacenamiento y tributo personal: dos aspectos de la organización socio-económica del antiguo Perú. In *Tecnología Andina*, edited by Rogger Ravines, pp. 189–206. Instituto de Estudios Peruanos and Instituto de Investigación Tecnológica Industrial y de Normas Técnicas, Lima.
- DeMarais, Elizabeth, Luis Jaime Castillo and Timothy Earle, 1996, Ideology, materialization, and power strategies. *Current Anthropology* 37 (1): 15–31.
- Dillehay, Tom D., 2001, Town and country in late Moche times: a view from two northern valleys. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 259–283. Studies in the History of

- Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- Donnan, Christopher B., 1968, *The Moche Occupation of the Santa Valley*. Ph.D. dissertation. Department of Anthropology, University of California, Berkeley.
- , 1978, *Moche Art of Peru. Pre-Columbian Symbolic Communication*. Museum of Cultural History, University of California, Los Angeles.
- , 1988, Iconography of the Moche: unraveling the mystery of the Warrior-Priest. *National Geographic Magazine* 174 (4): 550–555.
- , 1990, L'iconographie Mochica. In *Inca-Perú. 3000 Ans d'Histoire*, edited by Sergio Purin, pp. 370–383. Musées Royaux d'Art et d'Histoire. Brussels, Imschoot, uitgevers.
- , 1996, Moche. In *Andean Art at Dumbarton Oaks*, edited by Elizabeth Hill Boone, Vol. 1, pp. 123–162. Dumbarton Oaks Research Library and Collection, Washington D.C.
- , 1997, Introduction. In *The Pacatnamu Papers, Volume 2: The Moche Occupation*, edited by Christopher B. Donnan and Guillermo Cock, pp. 9–16. Museum of Cultural History, University of California, Los Angeles.
- , 2001, Moche ceramic portraits. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 127–139. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- , 2003, Tumbas con entierros en miniatura: un nuevo tipo funerario Moche. In *Moche: Hacia el Final del Milenio*, Actas del Segundo Coloquio sobre la Cultura Moche (Trujillo, 1 al 7 de Agosto de 1999), edited by Santiago Uceda and Elías Mujica, Tomo I, pp. 43–78. Universidad Nacional de Trujillo and Pontificia Universidad Católica del Perú, Lima.
- and Luis Jaime Castillo, 1994, Excavaciones de tumbas de sacerdotisas Moche en San José de Moro, Jequetepeque. In *Moche: Propuestas y Perspectivas*. Actas del Primer Coloquio sobre la Cultura Moche (Trujillo, 12 al 16 de abril de 1993), edited by Santiago Uceda and Elías Mujica. *Travaux de l'Institut Français d'Etudes Andines* 79:415–424. Universidad de La Libertad - Trujillo, Instituto Francés de Estudios Andinos and Asociación Peruana para el Fomento de las Ciencias Sociales, Lima.
- and Carol J. Mackey, 1978, *Ancient Burial Patterns of the Moche Valley, Peru*. University of Texas Press, Austin.
- and Donna McClelland, 1997, Moche burials at Pacatnamu. In *The Pacatnamu Papers, Volume 2: The Moche Occupation*, edited by Christopher B. Donnan and Guillermo Cock, pp. 17–187. Fowler Museum of Cultural History, University of California, Los Angeles.
- and Donna McClelland, 1999, *Moche Finesline Painting: Its Evolution and Its Artists*. Fowler Museum of Cultural History, University of California, Los Angeles.
- Earle, Timothy, 1987, Chiefdoms in archaeological and ethnohistorical perspective. *Annual Review of Anthropology* 16: 279–308.
- , 1997, *How Chiefs Come to Power*. Stanford University Press, Palo Alto.
- Eling, Herbert H. Jr., 1987, *The Role of Irrigation Networks in Emerging Societal Complexity During Late Prehispanic Times, Jequetepeque Valley, North Coast, Peru*. Ph.D. dissertation. Department of Anthropology, University of Texas, Austin.
- Ford, James A., 1949, Cultural dating of prehistoric sites in Virú Valley, Perú. In *Surface Survey of the Virú Valley, Peru*, by James A. Ford and Gordon R. Willey. *Anthropological Papers of the American Museum of Natural History* 43 (1): 29–87. New York.
- Franco Jordán, Régulo, César Gálvez Mora and Segundo Vásquez Sánchez, 2001, La Huaca Cao Viejo en el complejo El Brujo: una contribución al estudio de los Mochicas en el valle de Chicama. *Arqueológicas* 25: 55–59. Instituto de Investigaciones Antropológicas, Museo Nacional de Arqueología, Antropología e Historia del Perú, Instituto Nacional de Cultura, Lima.
- Johnson, Ilana, ms. (forthcoming), Portachuelo de Charcape: daily life and power relations at a Late Moche hinterland site. In *Actas de la Primera Conferencia Internacional de Jóvenes Investigadores sobre la Sociedad Mochica* (Pontificia Universidad Católica del Perú, Dumbarton Oaks y Museo Larco, 4 y 5 de Agosto del 2004), edited by Luis Jaime Castillo, Hélene Bernier, Julio Rucabado and Gregory Lockard. Pontificia Universidad Católica del Perú, Lima.
- Jones, Julie, 1992, *Loma Negra. A Peruvian Lord's Tomb*. The Metropolitan Museum of Art, Lima.
- , 2001, Innovation and resplendence: metalwork for Moche lords. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 207–221. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- Kaulicke, Peter, 1992, Moche, Vicús-Moche y el Mochica Temprano. *Boletín del Instituto Francés de Estudios Andinos* 21(3):853–903. Lima.

- Larco Hoyle, Rafael, 1944, *Cultura Salinar. Síntesis Monográfica*. Museo Rafael Larco Herrera, Chiclín.
- , 1945, *Los Mochicas (Pre Chimu de Uhle y Early Chimu de Kroeber)*. Sociedad Geográfica Americana, Buenos Aires.
- , 1948, *Cronología Arqueológica del Norte del Perú*. Biblioteca del Museo de Arqueología Rafael Larco Herrera, Hacienda Chiclín. Sociedad Geográfica Americana, Buenos Aires. [Reprinted in *Arqueológicas* 25. Lima, 2001].
- , 1965, *La Cerámica de Vicús*. Santiago Valverde S. A., Lima.
- , 1967, *La Cerámica Vicús y Sus Nexos con las Demás Culturas*. Santiago Valverde, Lima.
- , 2001, *Los Mochicas*. 2 volumes. Museo Arqueológico Rafael Larco Herrera, Lima.
- Lockard, Greg, 2005, Political Power and Economy at the Archaeological site of Galindo, Moche Valley, Peru. Ph.D. dissertation. Department of Anthropology, University of New Mexico, Albuquerque.
- Lumbreras, Luis G., 1979, *El Arte y la Vida Vicús*. Banco Popular del Perú, Lima.
- Makowski, Krzysztof, 1994, Los Señores de Loma Negra. In *Vicús*, edited by Krzysztof Makowski et al. Colección Arte y Tesoros del Perú. Banco de Crédito del Perú, Lima.
- Mann, Michael, 1986, *The Sources of Social Power*. Volume I. A History of Power from the beginning to A.D. 1760. Cambridge University Press, Cambridge.
- Moseley, Michael E. and James B. Richardson, III, 1992, Doomed by natural disaster. *Archaeology* 45 (6): 44–45.
- Narváez V., Alfredo, 1994, La Mina: una tumba Moche I en el valle de Jequetepeque. In *Moche: Propuestas y Perspectivas*. Actas del Primer Coloquio sobre la Cultura Moche (Trujillo, 12 al 16 de abril de 1993), edited by Santiago Uceda and Elías Mujica. *Travaux de l'Institut Français d'Etudes Andines* 79: 59–81. Universidad de La Libertad - Trujillo, Instituto Francés de Estudios Andinos and Asociación Peruana para el Fomento de las Ciencias Sociales, Lima.
- Pillsbury, Joanne, 2001, Introduction. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 9–19. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.
- Pimentel, Víctor and María Isabel Paredes, 2003, Evidencias Moche V en tambos y caminos entre los valles de Santa y Chao, Perú. In *Moche: Hacia el Final del Milenio*, Actas del Segundo Coloquio sobre la Cultura Moche (Trujillo, 1 al 7 de Agosto de 1999), edited by Santiago Uceda and Elías Mujica, Tomo I, pp. 269–303. Universidad Nacional de Trujillo and Pontificia Universidad Católica del Perú, Lima.
- Rosas, Marco, 2005, Proyecto Arqueológico Cerro Chepén, Informe de Excavaciones 2004. Informe de Investigaciones Arqueológicas presentado ante la Dirección de Patrimonio del Instituto Nacional de Cultura, Lima.
- Rucabado, Julio C. and Luis Jaime Castillo, 2003, El Periodo Transicional en San José de Moro. In *Moche: Hacia el Final del Milenio*, Actas del Segundo Coloquio sobre la Cultura Moche (Trujillo, 1 al 7 de Agosto de 1999), edited by Santiago Uceda and Elías Mujica, Tomo I, pp. 15–42. Universidad Nacional de Trujillo y Pontificia Universidad Católica del Perú, Lima.
- Shimada, Izumi, 1994, *Pampa Grande and the Mochica Culture*. University of Texas Press, Austin.
- , 1999, The evolution of Andean diversity: regional formations (500 B.C.E. – C. E. 600). In *Cambridge History of Native Peoples of the Americas*, edited by Frank Salomon and Stuart B. Schwartz, pp. 350–517. Cambridge University Press, Cambridge.
- and Adriana Maguñá, 1994, Nueva visión sobre la cultura Gallinazo y su relación con la cultura Moche. In *Moche: Propuestas y Perspectivas*. Actas del Primer Coloquio sobre la Cultura Moche (Trujillo, 12 al 16 de abril de 1993), edited by Santiago Uceda and Elías Mujica. *Travaux de l'Institut Français d'Etudes Andines* 79:31–58. Universidad de La Libertad - Trujillo, Instituto Francés de Estudios Andinos and Asociación Peruana para el Fomento de las Ciencias Sociales., Lima.
- Strong, William D. and Clifford Evans, Jr., 1952, *Cultural Stratigraphy in the Viru Valley, Northern Peru: The Formative and Florescent Epoch*. Columbia Studies in Archaeology and Ethnology, 4. Columbia University Press, New York.
- Swenson, Edward R., 2004, Ritual and Power in the Hinterland: Religious Pluralism and Political Decentralization in Late Moche Jequetepeque, Peru. Ph.D. dissertation. Department of Anthropology, University of Chicago.
- Ubbelohde-Doering, Heinrich, 1983, *Vorspanische Gräber von Pacatnamú, Nordperu*. Materialien zur Allgemeinen und Vergleichenden Archäologie, 26. Bonn, Kommission für Allgemeine und Vergleichende Archäologie des Deutschen Archäologischen Instituts.
- Uceda, Santiago, 2001, Investigations at Huaca de la Luna, Moche valley: an example of Moche religious architecture. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 47–67. Studies in the History of Art 63. Center for Advanced Studies in the Visual Arts, Symposium Papers XL. National Gallery of Art, Washington, D.C.

- _____, 2004, Los de arriba y los de abajo: relaciones sociales, políticas y económicas entre el templo y los habitantes en el núcleo urbano Moche de las Huacas de Moche. In *Informe Técnico 2004 – Proyecto Arqueológico Huaca de la Luna*, edited by Santiago Uceda and Ricardo Morales, pp. 283–318. Facultad de Ciencias Sociales, Universidad Nacional de Trujillo.
- Wiley, Gordon R., 1953, *Prehistoric Settlement Patterns in the Viru Valley, Peru*. Bulletin 155. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Wilson, David J., 1985, Prehispanic Settlement Patterns in the Lower Santa valley, North Coast of Perú: A Regional Perspective on the Origins and Development of Complex Society. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.

Wari and Tiwanaku: International Identities in the Central Andean Middle Horizon

WILLIAM H. ISBELL

CIVILIZATION IN THE CENTRAL ANDES – WARI AND TIWANAKU

When Julian Steward organized the *Handbook of South American Indians*, he placed Andean cultures in Volume 2, titled “The Andean Civilizations,” (Steward 1946). Andean societies, and particularly those of the Central Andes, were the only ones recognized as “civilized,” by Steward and his colleagues.

Answering the question “When did Central Andean cultures evolve into civilizations?” the best consensus has been the Middle Horizon, from about AD cal 650 to 1050. Specifically, the Middle Horizon Wari and Tiwanaku social formations were civilizations—with cities (Isbell and Vranich 2004; Isbell et al. 1991; Kolata 1993; Ponce 1981; but see Makowski, chapter 32 of this volume), state government (Isbell and Schreiber 1978; Kolata 1993; Janusek 2004) and maybe even imperial systems of expansion (Isbell and Cook 2002; Stanish 2003; Schreiber 2005). In terms of archaeological evidence, both Wari and Tiwanaku had complex settlement hierarchies. But what were these capitals like, and how were their polities organized? How did they differ from older Andean settlements and polities?

“Middle Horizon” is a period in Peruvian prehistory (Figure 37.1), but cultural dynamics embraced an area much larger than Peru (Figure 37.2). The Middle Horizon was the time when leadership in complexity within the Central Andes shifted from northern Peru and the Pacific coast – especially the spectacular Moche culture (see Chapter 36 in this volume) – to south central Peru, northwestern Bolivia and the Andean highlands (Figure 37.1). A new religious art spread through the Andes, composed of three primary

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

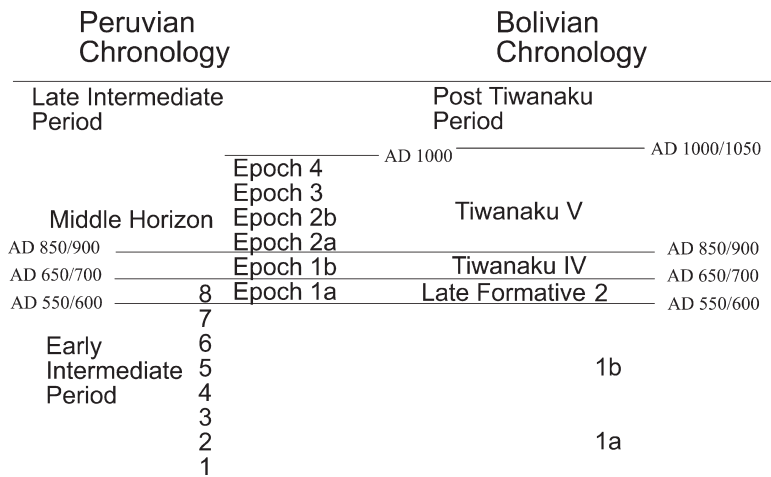


Figure 37.1. Cultural chronology for the Middle Horizon, with absolute dates based on current calibrated radiocarbon assays. The calibrated radiocarbon dates indicate that Huari is slightly later than formerly thought, and Tiwanaku is 150-200 years later, at least in its Later Formative 2 emergence and Tiwanaku IV phase. (William H. Isbell)

supernatural images. From new urban capitals in central highland Peru and Lake Titicaca Bolivia, the distinctive religious icons diagnostic of the Middle Horizon reached the northern Peruvian mountains and coast. In the south they dispersed through the highlands, reaching southern Bolivia and the eastern valleys that descend to tropical forests – among them, Cochabamba with its immense mounds and idyllic conditions for maize agriculture. Northern Chile, at least as far south as San Pedro de Atacama, participated in this great interaction sphere, as did northwestern Argentina’s La Aguada cultural style (see Chapter 30 in this volume; Figures 30.5, 30.6).

In recent years discussions of the Middle Horizon have centered around chronology of Wari and Tiwanaku development, the origin and spread of the distinctive iconography, the development of the two great capital cities, and the organization of their polities. The spread of Middle Horizon art implies some sort of unification; did it represent pre-Inca Empire, or something more limited? However, at least in part because Tiahuanaco is in Bolivia, and Huari is in Peru (where even chronological conventions are different), and perhaps also because Tiahuanaco has been recognized as an archaeological center for centuries, while Huari’s first archaeological descriptions appeared in the 1940s, investigators study one or the other, but very rarely both [Note 1]. Treating the two together is progressive, although it is surely the only way to understand the Middle Horizon, and the way it changed Central Andean trajectories of cultural evolution.

Middle Horizon art was discovered at Tiahuanaco, and named after the site (Stübel and Uhle 1892). Subsequently, many archaeologists assumed that Tiwanaku iconography originated at Tiahuanaco, creating a “Tiahuanaco First” slant to Middle Horizon studies. This is wrong, but an error easily made in light of the name. To avoid unwarranted implications of the name, I suggest a neutral acronym, SAIS (Southern Andean Iconographic Series) for Middle Horizon art formerly called “Tiahuanaco,” “Coast Tiahuanaco,” “Epigonal” and many other names.

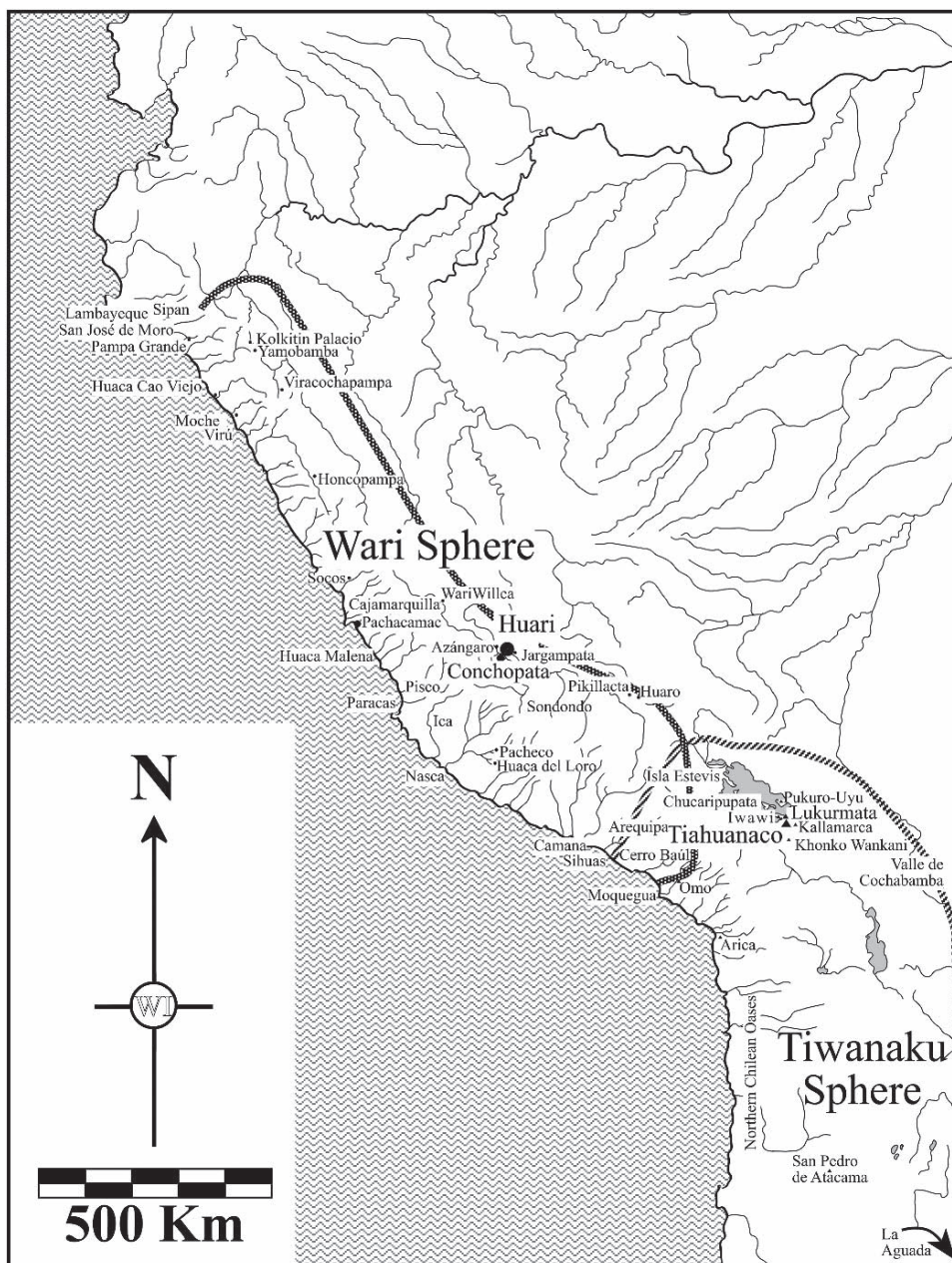


Figure 37.2. Map of the Wari and Tiwanaku spheres, locating the cities of Huari and Tiwanaku within each, as well as other major sites and locations discussed. (William H. Isbell)

THE SAIS PANTHEON, AND CROSS-DATING HUARI WITH TIAHUANACO

SAIS iconography is most beautifully and completely represented on Tiahuanaco's megalithic "Gate of the Sun" (Figure 37.3), which is probably one of the latest sculptures produced at Tiahuanaco. The beings depicted are three anthropomorphic figures, or sets of figures, a Staff God, a Rayed Head – who may be an attribute of the Staff God – and a variety of Profile Attendants. These three supernaturals co-occur in virtually all Middle Horizon art styles, such as the polychrome images on giant urns and jars from Huari's second city, and neighbor, Conchopata (Figure 37.4). Consequently, it seems that they represent the ideological core of a new religion. The three were clearly ranked – Staff God first, Rayed Head second, and Profile Attendants last.

Tiahuanaco's Gate of the Sun (Figure 37.3) shows 1 Staff God, 11 Rayed Heads, and 30 Profile Attendants in a clearly bounded area. The Rayed Heads, including the Staff God's face, surely represent 12 months. Thirty days are depicted by Profile Attendants, producing a 360-day solar calendar, whose correction for true solar years was apparently worked out by observing the setting sun over the monoliths in the western Balconera wall of Tiahuanaco's Kalasasaya building (Benitez n.d.), near the modern location of the Gate of the Sun (see further discussion below in "The Cities of Huari and Tiahuanaco" section).

The SAIS Staff God surely represents an early version of a principal Andean deity similar to Inca gods Viracocha, Sun, Moon, and Thunder (Demarest 1981; Menzel 1968). The Sun seems most likely, given 12 Rayed Faces on the gateway. However, Menzel (1977) compared the Staff God image with the Inca Thunder God, ruler of the weather, especially life-giving rain. Significantly, a Wari Staff God depiction shows a male and a female version, standing side by side (Figure 37.5; Morris and von Hagen 1993: 112; Posnansky

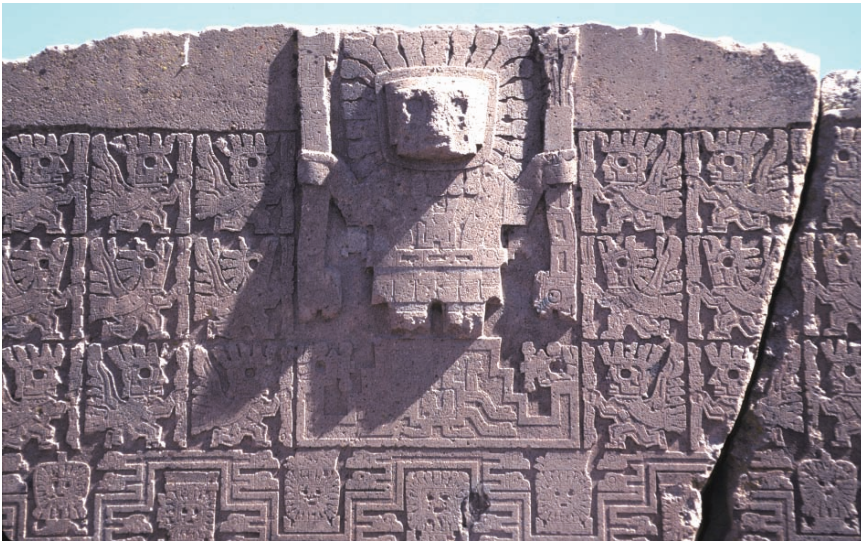


Figure 37.3. Tiahuanaco's Gate of the Sun. Its central panel includes all three SAIS images: the Staff God (1), two variants of Profile Attendants (30) and a band of Rayed Heads (12) across the bottom of the decorated area. The profile attendants are organized into three rows, one above the other, facing the Staff God. They may be marching in procession toward, or perhaps kneeling to the central figure. (photo by William H. Isbell)

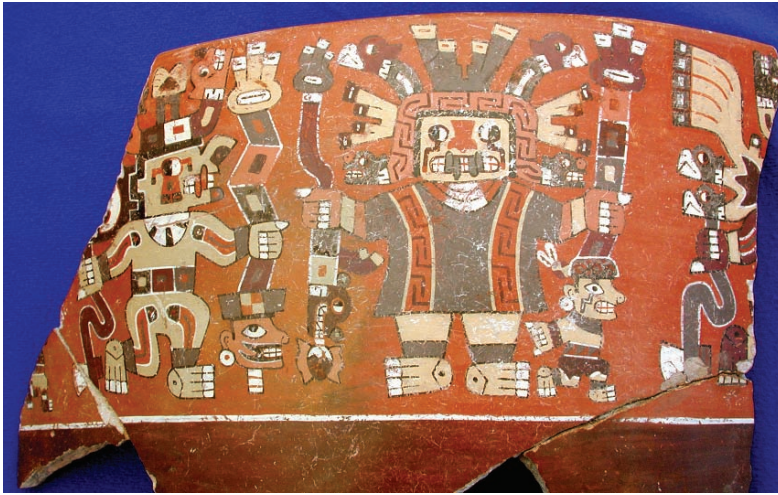


Figure 37.4. Conchopata Offering Urn, decorated with polychrome painted SAIS images, including the Staff God and Profile Attendants. This fragment was discovered in 1999, but belongs to the style discovered by Julio C. Tello at Conchopata in 1942. Wari style. (photo by William H. Isbell)

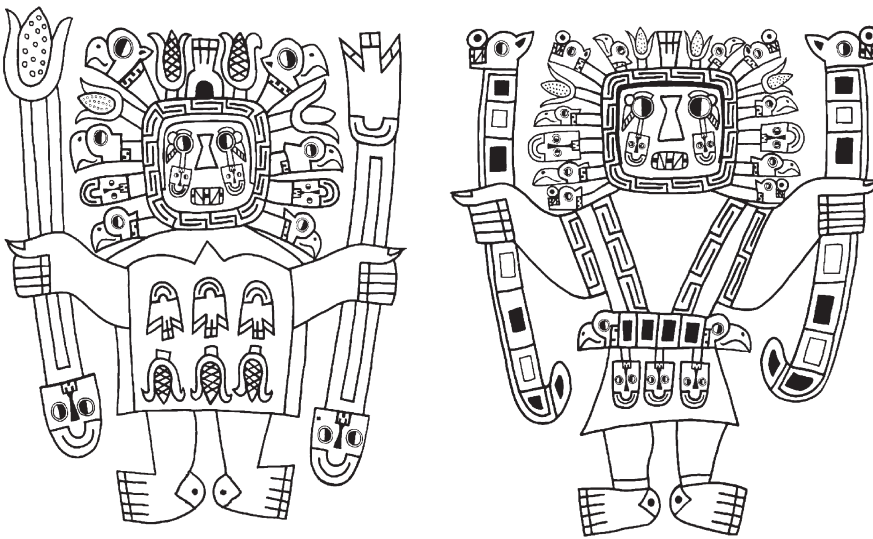


Figure 37.5. Drawing of Male and Female Staff Gods from oversize urns discovered at Pacheco, Nasca. Wari Style. (Redrawn by William H. Isbell from Morris and von Hagen 1993: 112 and Posnansky 1957: plate LVIIa)

1957: plate LVIIa), that Menzel related to the divine Inca couple, Sun and Moon. Inca analogies for Profile Attendants are unexplored. There is certainly continuity between SAIS art and Inca religious ideology, but not enough for secure analogies.

The origin of SAIS iconography continues to confound archaeologists. It did not originate at Tiahuanaco, where it appears more or less fully developed in stone sculpture

[Note 2]. Although very few of Tiahuanaco's stone carvings were discovered in datable archaeological contexts – so their temporal assignments must be inferred through seriation (Agüero et al. 2003) – what are surely Tiahuanaco's archaic sculptures belong to the widely spread, early altiplano style known as Yaya-Mama (Chavez 2004). The only SAIS icon in that style is the Rayed Face. Furthermore, there is little transition between Yaya-Mama sculptures and the SAIS statues, which emphasize fine-line incision, and are often referred to collectively as "Classic Tiahuanaco."

Roots of SAIS iconography are found in several early south Andean cultures. They include Pucara of the northern Titicaca Basin; Pucara Provincial from coastal Arequipa; the Yaya-Mama style (with Rayed Head only); and northern Chilean art—but, almost exclusively, hallucinogenic snuff paraphernalia found in burials from Atacama oases cemeteries (Isbell and Knobloch 2006). However, the complete set of SAIS icons are not included in any of these art styles, or in the configuration of images that appeared more or less simultaneously at Tiahuanaco and at Huari/Conchopata [Note 3] early in the Middle Horizon. Without evidence for gradual development, archaeologists must conclude that synthetic reconfiguration of the pantheon took place very quickly.

Although it has been known for years that Tiahuanaco and Huari shared SAIS images, only now have we discovered virtual duplication in the two heartlands, confirming that images in both were copied from the same model, that was apparently circulating between both capitals. In spite of different media, the Staff God on the back of Tiahuanaco's Ponce Monolith is almost identical to the Staff God painted on giant offering jars from Conchopata (Figures 36.6 and 36.7, compare Staff Gods). Direction of the diffusion cannot be inferred securely, although the antecedent cultural styles are southern. At last SAIS stylistic development in the two heartlands can be synchronized. SAIS imagery appeared at Huari/Conchopata in Middle Horizon 1B, and at Tiahuanaco in the Tiwanaku IV period, whose best C14 dates show it to be about AD 700, a century or so later than argued in currently popular discourse (Figure 37.1). Dating Tiahuanaco excessively early is a legacy of old thinking that may finally be corrected.

Of course, Tiahuanaco and Huari/Conchopata have examples of SAIS art that are unusual and deviant, that might represent steps in the gradual development of the pantheon, but they look more like coarser variants of the mature compositions, and do not appear to be temporally earlier. Consequently, I am convinced the Ponce Monolith and the Conchopata offering jars belong to a moment not long after the simultaneous adoption of SAIS art at Tiahuanaco and at Huari/Conchopata, through mutual agreement. Religious leaders from the two spheres must have met and agreed on a new cosmology – along with conventions for its depiction, that drew on a wide range of southern cultural traditions – that both would embrace.

Reconfigured SAIS iconography became popular in both metropolises, at Tiahuanaco on stone sculpture, and at Huari/Conchopata, painted on oversize ceramic jars and urns. At its most complex the synthesis includes a full-bodied, standing, front-face Staff God associated with smaller and obviously subordinate Profile Attendants, often depicted in diagnostic running or kneeling pose. The profile attendants hold a single staff in front of their body. The back often has a wing, or a second arm and hand grasping an axe and severed head. Attendants often appear to the right and left of the Staff God, sometimes in several groups or rows above and below one another (Figures 37.3-37.7). The Staff God sometimes stands on a three-step pyramid (Figure 37.6). Rayed heads appear alone, or in complex compositions, but seem to be abbreviated Staff God images.

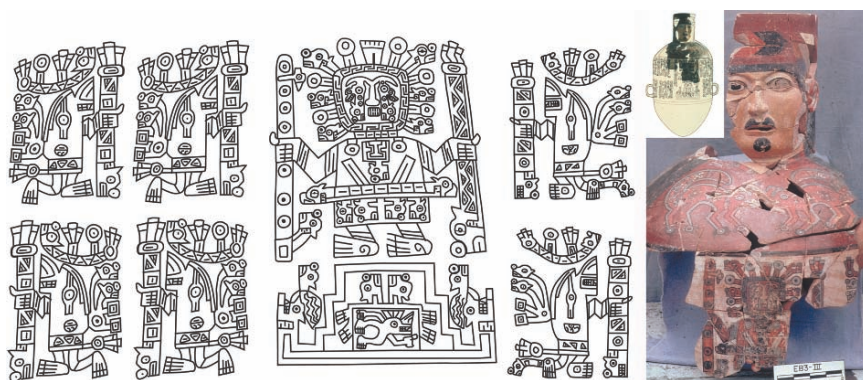


Figure 37.6. Conchopata Oversize Offering Jar. Staff God and Profile Attendants are depicted on this giant jar, discovered at Conchopata in 1977. The Staff God stands on a three-step pedestal, while two rows of flanking Profile Attendants are depicted to the right and the left. The upper row faces the central figure, while the lower row faces away. Wari Style. (photo by William H. Isbell)

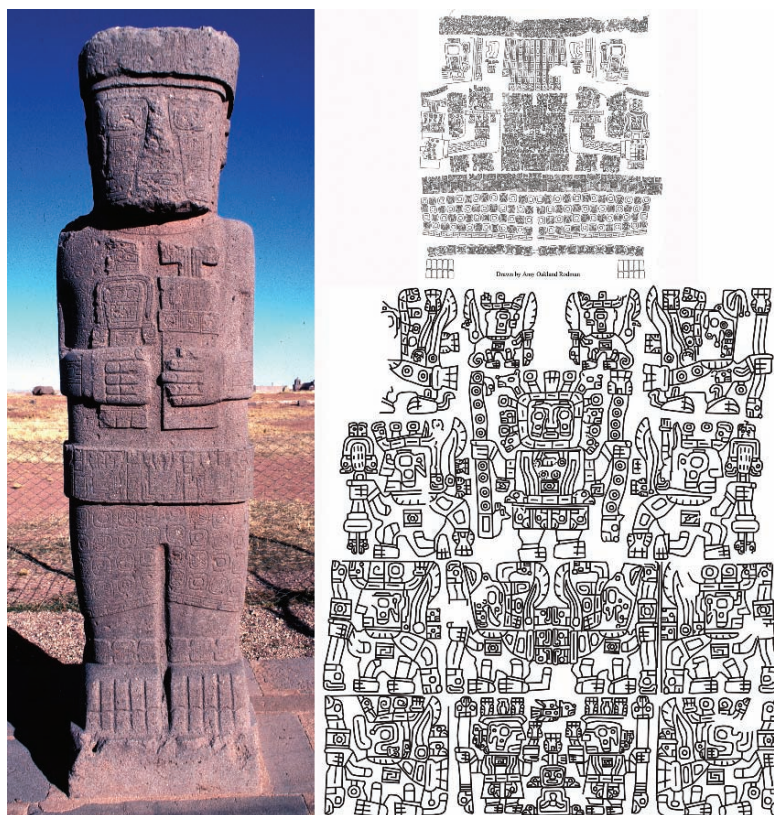


Figure 37.7. Tiwanaku's Ponce Monolith. The surface is covered with designs incised into the stone with very fine lines. In the middle of the back is a Staff God, with rows of Profile Attendants to the right and left. (photo by William H. Isbell)

STYLISTIC HORIZON AND POLITICAL UNIFICATION: THE QUESTION OF EMPIRE

Wari and Tiwanaku shared SAIS iconography, and its diffusion from the two centers defines the Middle Horizon. Other material culture was also spread, including striped tunics of interlocking tapestry, woven on long, horizontal looms, and decorated with distinctively stylized religious images. A tall drinking vessel called a “kero,” pottery decorated with painted polychrome designs, burnished black ceramics, four-cornered hats, metal shawl pins known as “tupu,” *Anadananthera colubrina* symbols, and bronze metallurgy seem also to have spread throughout the Andes as part of the package.

Early archaeologists considered Middle Horizon cultural diffusion to be a single wave originating at Tiahuanaco, and gradually diminishing with distance. As more research accumulated in the second half of the twentieth century it became clear that there were two variants, each quite consistent within its territory. Tiwanaku is characterized by megalithic stone monuments, vernacular architecture of small adobe rooms, grinding stones with a push-pull mano, distinctive llama mandible tools, conical “trompo” stones, small stemmed projectile points, interlocked tapestry tunics of one piece woven entirely of wool, wooden snuff tablets and other drug-snuffing paraphernalia, as well as pottery that is easily differentiated from Wari ceramics by experienced archaeologists. Tiwanaku people carefully placed trash in deep pits, as though it were ritually polluting.

By contrast, Wari is characterized by rough stone buildings and the indiscriminant dumping of trash in abandoned houses. Public architecture emphasized quadrilateral compounds divided into rectangular apartments so rigidly organized that it has been called orthogonal cellular architecture (Isbell 1991). Less common are D-shaped ceremonial structures. Vernacular buildings are also rectangular, but less regular in plan. Huari people used the rocker grinder. Llama pelvis tools and ovate stone points were popular, but snuff tablets were rare or absent. Interlocked tapestry tunics were very similar to Tiwanaku’s in appearance, but different in construction. They were woven in two pieces and seamed up the middle. Usually they had cotton warp and woolen weft. Four-cornered hats from the two cultures were also similar in appearance, but different in manufacture.

Each city spread its own material culture creating a Wari realm in the north and a Tiwanaku sphere in the south (Figure 37.2). Based on distributions of material remains, especially pottery, the boundary between the Wari and Tiwanaku territories ran through southern Peru, across the Department of Puno, some distance north of Lake Titicaca, to the coast of Arequipa and Moquegua (Rowe 1956). In Arequipa Wari ceramics are found in the Ocoña-Cotahuasi Valley (Jennings and Yépez 2002), and farther south to at least the Sihuas Valley. Tiwanaku ceramics dominate northern Chile and Peru’s southernmost Department of Tacna (Berenguer and Daulesberg 1989). In between, from the city of Arequipa to the Moquegua coast, Tiwanaku ceramics occur, but there are also Wari sites and enclaves (Cardona 2002).

From the boundary with Wari, Tiwanaku ceramics and other artifacts extend south through Bolivia and Chile, reaching Potosí, Tarija, and northwestern Argentina at their southeastern extreme. In Chile they are spread throughout the dry Atacama region, at least to San Pedro de Atacama (Torres 2002).

Wari art and artifacts extend far to the north, reaching Cajamarca and the Chotano River in the highlands. On the coast they stretch from Moquegua to at least the Lambayeque Valley.

Does the Middle Horizon diffusion of pottery styles and other material culture reveal the spread of empires, perhaps through conquest? Some Andeanists answer “Yes,” pointing

to archaeological evidence for intrusive colonies and provincial rule. On the other hand, it is clear that in many places, Wari, and in others, Tiwanaku, cultural remains appear only as prestige goods, or as stylistic influences that do not look like imperial invasion or administrative control.

A puzzling feature of Wari and Tiwanaku spread is action in concert, similar to what is implied for the synthesis of SAIS iconography. Early in the Middle Horizon, perhaps by AD 650 to 700, Wari and Tiwanaku colonists invaded the Moquegua Valley, on the far south coast of Peru (Goldstein 2005; Williams and Nash 2005). Wari occupied the upper valley, and Tiwanaku the middle sector. There is little or no evidence of warfare between the two, or between the new arrivals and the locals, although the possibility cannot be ruled out.

In Moquegua Wari established its primary center on a vertical-sided mesa named Cerro Baul, as well as several neighboring hills. Naturally defensive, Cerro Baul was further strengthened with baffles on the ascending trail, and perhaps additional walls. On the flat summit Wari settlers constructed 4 or 5 ha of stone walled buildings, including orthogonal cellular patio groups, D-shaped temples, feasting halls, a brewery, and other facilities appropriate for residents, administrators and guests, although barracks have not been discovered. A long and impressive canal was dug, claiming new land for cultivation, and bringing water to the foot of the mesa-top town (Williams 2003). A Huari heartland authority at Cerro Baul was commanding labor, and negotiating with Tiwanakan neighbors.

Wari settlements on the surrounding slopes include a range of residential facilities varying from large elite homes to small, humble dwellings (Nash and Williams 2002). Some residents appear to have come from the Huari heartland, while others seem “Warified” locals. Indeed, the archaeological record reveals Huari intrusion, as well as the emergence of a new, Wari identity based on innovative material culture combining Wari with local traditions. At the Middle Horizon Beringa site, several valleys north, Owen (in press) documents similar processes in pottery. Apparently, a new international Wari identity was being forged.

Tiwanaku established two sets of communities downstream from the Wari settlements. They were not fortified, and were characterized by virtually pure heartland material culture, in two versions known as Omo and Chen Chen. Material culture as well as the people themselves, seems to have remained faithfully heartland, with no “Tiwanakanized” locals or hybrid, international assemblages or identities (Blom and Buikstra 1999; Goldstein 2005; Sutter 2005).

At the Omo enclave 20 km from Cerro Baul a medium-sized monument was constructed of adobe. Originally including several walls faced with cut stones, the complex was about 45 m wide and 120 m long. It consisted of three in-line enclosures, each elevated above its predecessor. The first two are open assembly areas. The uppermost was divided into a series of rooms around a small, central sunken court. Goldstein (2005) emphasizes similarities between the M10 building and altiplano temples, interpreting M10 as a heartland installation where religious processions took place. However, M10 is remarkably similar to later Andean palaces, at least as they were described for the Incas, so it may represent the seat of political authority for Moquegua’s Tiwanaku colonists. Was it occupied by a Tiahuanaco governor, or a colonist patriarch? Was control of the colonies centralized rule, or more ceremonial and ideological, as Goldstein now infers?

Tiwanaku’s Moquegua colonists were altiplano immigrants, but there is confusion about how the colonies should be understood. When Paul Goldstein (2005) began investigating Tiwanaku intrusion into Moquegua he emphasized the awesome power of the Tihuanaco state, and colonists’ dependence on it. But progressively, and heavily influenced by

analogy with modern highland squatters in Moquegua, he stresses the agency and choice of the migrants themselves, even suggesting that the colonists may have migrated to escape state control. Or, perhaps they were refugees from heartland convulsions. Be that as it may, what is clear is that the local Moqueguans were not drawn into an expansive and international Tiwanaku political identity. Even if the Moquegua colonies were ruled from Tiahuanaco, through a governor installed at M10, Tiahuanaco's behavior is puzzling. Empires promote new international identities. Empires exploit provincial people. Empires do not ignore the conquered locals.

In the southern altiplano heartland, Lukurmata, Khonko Wankani, Pajchiri, Oje, Chucaripupata and Pukuro-Uyu are all Middle Horizon (many have earlier occupations as well) sites that have monumental architectural remains reminiscent of the monumental buildings at Tiahuanaco. None is located more than 50 to 75 km from the ancient capital. Few of these sites have been investigated well enough to fully understand their role in the rise of Tiahuanaco, or in Middle Horizon political organization, but the spatial distribution seems to define a core territory spreading no further than 75 km from the capital. It probably represents the early cultural hearth within which Tiahuanaco developed, as well as an area that was subject to direct rule. What was the history and nature of Tiwanaku beyond this core territory?

The Moquegua colonies had a temple/palace at Omo M10, perhaps representing direct rule from the metropole. So the Middle Moquegua Valley was probably an imperial province of Tiahuanaco, with its capital at Omo M10, although lack of interest in local residents seems contradictory, and peacefully (?) sharing the Valley with Wari even more curious.

Significantly, no other provincial Tiwanaku capitals have been identified by the presence of monumental administrative architecture. A Tiwanaku settlement on the northern Lake Titicaca shore, at modern Puno's Isla Esteves (Figure 37.2) may have had more than domestic architecture and agricultural terraces, but construction of a luxury hotel destroyed most remains. Stanish (2003) argues that Tiahuanaco directly controlled this area, as well as a corridor connecting the two locations, that skirted the entire west side of Lake Titicaca. But with no administrative capital, archaeologists cannot be sure. Perhaps future research, determining whether there were intrusive colonies, plus "Tiwanakanized" locals, will resolve the question.

During the Middle Horizon, Tiwanaku art and artifacts became extremely common in the agriculturally rich Cochabamba Valley. This eastern Andean valley, long inhabited by complex societies, was famous for maize, and chicha beer brewed from maize. The Inca Empire completely reorganized the valley to extract maize – and left a spectacular mountain-top administrative town, Incarracay, overlooking the basin. Some archaeologists argue that earlier Tiwanaku did the same, citing as evidence Cochabamba's adoption of Tiwanaku-style pottery (Ponce 1981; Stanish 2003). However, settlement patterns changed little (Higueras 1996), and no Tiwanaku-style administrative architecture has been identified, even at the site with the most Tiahuanaco-like ceramics, Piñami (Céspedes 2000). Furthermore, a study of biodistance based on skulls from the Cochabamba region implies demographic continuity, not the intrusion of altiplano people during the Middle Horizon (O'Brien 1999), as in Moquegua. Much more research is required. Perhaps new investigations will change our ideas about relations between Tiahuanaco and Cochabamba, but at present it seems more likely that Tiahuanaco was an influential religious center, trade partner, and international cultural model emulated by Cochabambans, not an imperial administrator. It is apparent from Cochabamba-Tiwanaku style artifacts that a new international Tiwanaku identity had emerged.

Arica, on the Chilean coast, is another debated case of Tiwanaku colonization. Goldstein (2005) argues that highland Tiwanaku colonists were present, but administrative architecture is lacking. Uribe and Agüero (2002) conclude that the impressive Tiwanaku materials can be accounted for by trade with the neighboring Tiwanaku colonies in Moquegua.

Throughout arid northern Chile, south of Moquegua and Arica, Tiwanaku artifacts occur in select burials. Spectacular textiles appear, as do keros and other ceramics, occasional gold objects, and of course, snuff paraphernalia that bear SAIS icons. Some scholars infer Lake Titicaca colonists (Kolata 1993; Rodman 1992), but most archaeologists point out that the number of Tiwanaku-style objects is actually small, and they occur as a minority of artifacts among a great many more local artifacts in elite graves. The more convincing interpretation is that llama caravans conveyed traders and goods across vast deserts, dispersing products of different microenvironments and craft traditions in a long-standing system of trans-cultural interaction (Berenguer 2000; Berenguer and Daulesberg 1989) that Stovel (Chapter 49 in this volume) describes as a “cultural field.” Apparently, Tiahuanaco was not extending political control or sending colonists into Chile, but participating in an ancient sphere of relations that involved poorly understood movements of people and goods. What was probably new was the promotion of a multinational Tiwanaku identity associated with practices involving Tiwanaku-style material culture.

Wari stands in sharp contrast to Tiwanaku. Administrative architecture similar to that constructed at Moquegua’s Cerro Baul appeared throughout the Wari sphere (Isbell and McEwan 1991, Schreiber 1992) early in its development. The most impressive provincial administrative capital is Pikillacta (McEwan 2005) (Figure 37.8), in the Cuzco Valley about 300 km southeast of the Huari metropole. A rectangular complex encloses 1 sq km

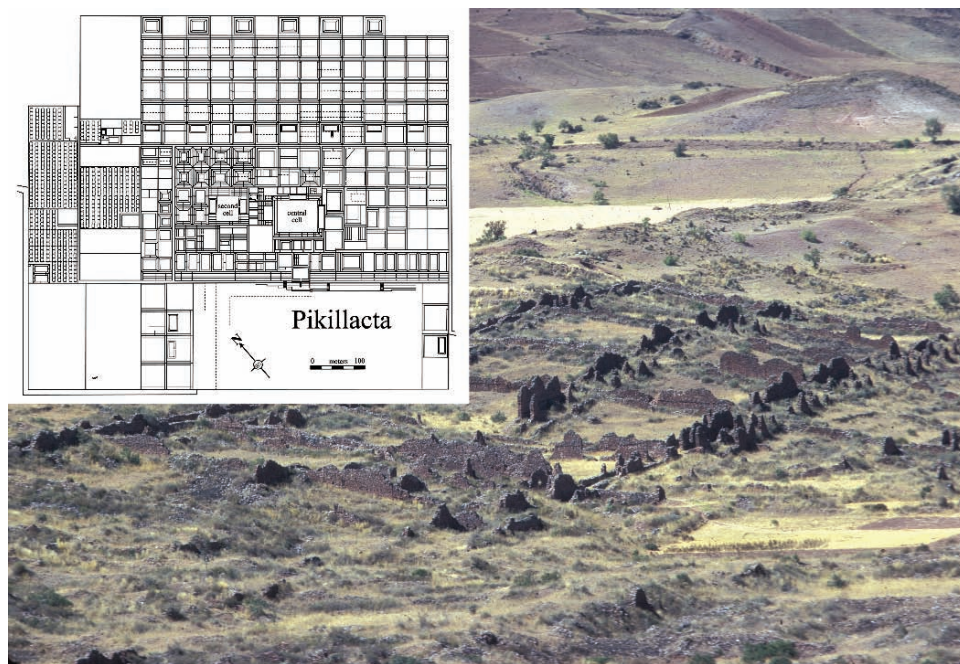


Figure 37.8. Pikillacta, the Wari administrative center in Cuzco. (Map redrawn from McEwan 2005: fig. 2.7; photo by William H. Isbell)

of orthogonal cellular architecture. Within are walled streets; patio groups containing large plazas surrounded by multi-storied lateral rooms and halls; rows of small, oval rooms that might have been storehouses, and ceremonial courts. There also are roads and irrigation canals, an aqueduct, great walls, and other features that reshaped the entire valley during 2 to 4 centuries of Wari occupation – about AD 650–700 until 900–1000 (McEwan 2005). Twenty km south of Pikillacta is Huaro, another intrusive Wari community, larger in area than Pikillacta, but more residential in nature (Glowacki 2002). Elite tombs, perhaps for Huari governors, were found on Huaro's Batan Urqu hill (Zapata 1997). Wari ceramic styles significantly altered the pottery traditions of Cuzco, and the labor invested in Wari public architecture ran into millions of man days. There is little doubt that Cuzco became a province administered more or less directly from Huari, and that exploited locals were participating in an empire that promoted a new international identity.

Almost 1000 km north of Cuzco, in the Huamachuco Valley, is Viracochapampa, a Wari orthogonal cellular enclosure similar to, but somewhat smaller than, Pikillacta (Topic 1991; Topic and Topic 2001). Huamachuco had an impressive architectural tradition of its own, which probably contributed as much to Wari innovations as it received. Furthermore, Viracochapampa was not occupied for long, and much of its great enclosure remained vacant of interior compounds. So Wari presence in this northern region is unlikely to have been simple conquest and control as implied for Cuzco. More likely, it represents accommodation to indirect rule, or perhaps an even more mutual process, but surely involving some degree of control as well as the international Wari identity and material culture, at least among Huamachuco's elites. Perhaps a similar process explains Honcopampa, a town in the next valley to the south, the large Callejon de Huaylas. It seems to have been a center for indirect Huari rule, consisting of several palaces and mortuary monuments that combined local and foreign architectural canons, as well as ceramics.

The most intensive investigation of an intrusive Wari occupation outside the heartland is in the Sondondo Valley, about 130 km south of Ayacucho (Figure 37.2; Schreiber 1992, 2005). A small orthogonal cellular administrative compound, 125 by 255 m was constructed. Katharina Schreiber shows that Wari built roads through the area, relocated all the settlements, constructed a shrine, and terraced and irrigated the valley sides. This is an extremely convincing example of imperial conquest, colonization, and then administrative reorganization and control for imperial benefits. Huari exploited Sondondo.

Schreiber (2005) argues from her Sondondo study that similar behavior was more or less characteristic of Wari, and that consequently, it must be classified in the unilinear stage "empire." While I agree that Wari is best understood as an empire, classification often results in the imposition of the ideal characteristics on the past, creating unverified knowledge that goes untested because it conforms to our expectations. I suspect that variation in Huari's provincial policies was extremely great, as were the forms of its control and other influences. In many cases neither conquest, colonization, nor provincial rule seem indicated by the archaeological record. Conversely, even when these classic diagnostics of empire are lacking, as in Peru's north coastal valleys, Wari cannot be discarded as irrelevant. The presence of Wari ceramics in elite tombs, as at the Jequetepeque Valley site of San José de Moro (Castillo 2001), reveals at least some degree of participation in Wari's new international identity.

Schreiber's case study in Sondondo, fascinating as it is, may not represent typical Wari provincial rule, as she infers. Wari also occupied neighboring Chicha Valley, but the settlements and the landscape were modified very little (Meddens 1985). Why such difference in policy? A hint may be preserved in Sondondo – megalithic tombs. Not only

was Sondondo radically reorganized, but one of the sites has megalithic stone chambers that were probably sepulchers for nobles. Since comparable tombs are limited to the Huari capital itself, I suspect that the Sondondo Valley had a Wari royal residence, a country palace or royal retreat. Inca rulers built palaces some distance from Cuzco, where they could retreat from the public. The most famous example is Machu Picchu, but there are numerous others. Like Sondondo, the surroundings were intensively terraced, and royal mummies were kept there some of the time.

The Wari provincial administrative capitals of Peru's highlands, and other less known examples, reveal a profound difference between Wari and Tiwanaku. Wari behavior, albeit still far from adequately understood, is much more consistent with expectations of an empire than Tiwanaku, which contradicts fundamental expectations, even in its best case, Omo in the Middle Moquegua Valley. Huari did establish and administer provinces for the benefit of its homeland elite. It "Warified" provincials, and everywhere seems to have promoted a new international Wari identity with distinctive material culture. Tiahuanaco has only one known case of what might have been provincial administrative architecture, but the residents of the site seem to have rigidly maintained heartland Tiwanaku identity, without interfering with locals, who show no evidence of participating in a unifying social process. Elsewhere, there is no trace of administration, but much more evidence for material culture employed to create a common new Tiwanaku identity.

Of course, definitive conclusions are still premature. Along the coast Wari's orthogonal cellular compounds are very rare, consistently smaller than in the highlands, and they often have such sparse occupational debris that it is difficult to confirm their cultural affiliation. In the far south coastal Camana Valley, excavations by Malpass (2002) at a small orthogonal cellular complex produced barely a handful of Wari-related sherds. Significantly, the south coastal valleys of Nazca, Ica, and Pisco experienced radical ceramic changes during the Middle Horizon, with Wari-related pottery styles replacing millennia-long local traditions. This certainly suggests Wari colonization, followed by the formation of a new identity. To date, however, only one tiny orthogonal cellular compound has been identified, Pataraya, high in the Nazca Valley (Schreiber 2001).

Peru's central coast has little evidence for specialized Wari administrative architecture either, in spite of great cultural transformations during the Middle Horizon. Wari-style pottery and textiles appear in burials at Pachacamac (Kaulicke 2001), Huaca Malena, Chimú Capac, and other sites. SAIS icons became ascendant, innovative ceramic styles appeared, and new, but still poorly defined, architectural forms materialized at centers such as Cajamarquilla. Settlement patterns experienced change, but the small Socos site in the Chillón Valley (Isla and Guerrero 1987) seems to be the only example of orthogonal cellular construction.

On the north coast Wari-style pottery and ovate obsidian projectile points appeared in burials at San José de Moro (Castillo 2001). Wari ceramics and icons were found at Huaca del Sol/Huaca de la Luna, and other centers. Wari tapestries were buried at Huaca Cao Viejo, and other cemeteries with important local elites. A new polychrome ceramic style called "Huari Norteño" (Larco 1948), inspired by Wari but with strong local components, gained widespread popularity. In later north coast religious art several SAIS-inspired icons accompany older Moche supernaturals.

In the mid-twentieth century archaeologists agreed that north coast cultures were so completely transformed during the Middle Horizon that they must have been conquered and reorganized by Wari. However, recent research (Bawden 1996; Chapdelaine 2002) identifies cultural patterns thought to have been introduced – including great rectangular

administrative enclosures, planned urban centers, and probably even state government – in pre-Middle Horizon Moche culture. Emphasizing continuity in north coast culture as well as political capitals such as Pampa Grande that reveal no Wari presence (Shimada 1994), the convulsions of north coast civilization during the Middle Horizon and Late Intermediate Period are now attributed to internal factors, not Wari warriors. However, this reversal may represent extreme swings of the intellectual pendulum, from inferring Wari conquest and absolute control to the inference that Moche culture remained totally independent of Wari throughout the Middle Horizon. Wari may have been resisted by the Moche, at least from about the Viru Valley north (Topic and Topic 1987). But of course, even if these scholars are correct, the north coast still reveals enough Wari influence to indicate significant participation in the newly emerging international Wari identity.

Definitive interpretations of the spread of Wari and Tiwanaku culture during the Middle Horizon are still elusive. There seems little doubt that some kind of imperialistic organization and expansionism was involved. But the Andean archaeological record does not confirm the imperial organization or goals typical of “empire” as an evolutionary stage. Tiwanaku is more divergent than Wari, for at least in some parts of the highlands, Huari behaved much like a typical imperial power. However, extremely sparse occupation in some orthogonal cellular compounds and even seemingly never-completed enclosures, demands more investigation if Wari provincial organization and political economy are to be understood. If the transformed and highly administered Sondondo Valley characterizes Wari provincial activity, imperialism was much more like the evolutionary ideal than implied by the archaeological remains from the central coast, for example. But the Sondondo Valley may not have been a province at all, but a royal estate. Many coastal valleys, some revealing remarkable cultural transformation during the Middle Horizon, have little or no evidence for direct Huari administration. Perhaps indirect rule was employed, but this remains to be documented. On the other hand, the adoption of SAIS icons, the popularity of new, innovative styles in pottery, the prominence of clothing of interlocking tapestry – often depicting SAIS themes – and other material culture do attest to the emergence of a shared new Wari religion and identity.

Tiwanaku is more confusing. It seems to have created mechanisms for provincial rule in Moquegua, only to ignore the exploitative goals of empire. In other areas the nature and processes of Tiwanaku incursion are far from understood, but seem to be based more on the promotion of new religion and identity through consumption of distinctive material culture. Was this an immature step toward imperialism that was never realized, or some kind of cultural formation that is not adequately understood by archaeologists?

Among many practices that promoted new Wari and Tiwanaku identities, one of the most prominent was drinking maize beer from a distinctive chalice-like kero. Was a single new system of etiquette shared by Wari and Tiwanaku? Did both cultures subscribe to a higher-level identity, perhaps like Christianity, with competing centers, like Rome and Constantinople?

THE CITIES OF HUARI AND TIAHUANACO

Prior to the Middle Horizon, neither the Huari nor the Tiahuanaco heartlands seem likely places for the appearance of a state capital capable of extending influences over millions of Andeans. During the preceding Early Intermediate Period, north coast Moche culture was the Central Andean evolutionary apogee. The wealth and power of its principal lords, such

as the rulers buried at Sipan, imply a degree of social differentiation and hierarchical power characteristic of civilized, state government. However, if Castillo and Uceda (Chapter 36 in this volume) are correct, the realm was composed of small and competing “peer polities” and never unified into one centralized regional state. But Moche survived into the first century or so of the Middle Horizon, so refined chronological control is required to determine what political and cultural developments were achieved after Wari/Tiwanaku influences impinged on the Moche, and which significantly precede them.

Antecedent conditions around Tiahuanaco are ill-understood, in part because nationalistic narratives about the monumental center exaggerated its antiquity (see Chapter 55 in this volume). When the Moche were constructing great pyramids in the capitals of their “statelets,” during the first half of the Early Intermediate Period, the Pucara site, north of Lake Titicaca in modern Peru, was ascendant in the altiplano. Pucara collapsed between AD 200 and 400, but Tiahuanaco and its heartland do not seem to have become the new altiplano center before about AD 500, and perhaps even somewhat later. In fact, the Tiahuanaco heartland appears somewhat backward during the Early Intermediate Period. A larger settlement was located only 30km away, near the tip of the Taraco Peninsula (Bandy 2006). But population was growing, perhaps a result of raised fields agricultural technology, exploiting wetlands along the lakeshore. However, there continue to be questions about the chronology and use history of Lake Titicaca’s raised fields. Just to the south of Tiahuanaco are vast grazing lands, and the early monumental center of Khonko Wankani (Janusek et al. 2003).

Huari’s Ayacucho Valley is also poorly known for the Early Intermediate Period Huarpa culture (see Leoni 2006). Settlement survey indicates that population grew immensely and a complex settlement system was developing (MacNeish et al. 1981), perhaps supported by new engineering skills for long irrigation canals, as well as terracing steep hillsides for farming. However, former ceramic classifications have not distinguished the end of the Early Intermediate Period from the early Middle Horizon adequately; therefore dating requires future revisions. The claim that a single state unified the Valley (Leoni 2006; Lumbreras 1974) is based more on evolutionary expectations than on archaeological data: if Huari became an empire early in the Middle Horizon, the antecedent Huarpa culture must have been a state. More probably, the Ayacucho Valley was like the Tiahuanaco heartland, culturally rather backward during the Early Intermediate Period, at least relative to the Moche or Pucara cultures. Certainly, neither heartland stands out as the place that would be expected to produce a great urban capital and expansive state.

As discussed above, Huari and Tiahuanaco were historically related in their ascendancy to prominence – they do not represent independent evolutionary processes. In some respects they were astonishingly similar, but in some others, virtual opposites. This is apparent in the capital cities’ built environments.

The people of Tiahuanaco constructed in two extremes (Figure 37.9). Homes were of adobe, a part of the land that melted back into the altiplano without leaving a trace. Sturdy and warm, but ephemeral, they affirmed generationality. On the other hand, public monuments were megalith-faced pyramids participating in eternal sacred space-time. Within Tiahuanaco’s monumental civic center, gateways, walls, and building perimeters were precisely aligned with sacred phenomena such as mountain-tops and astronomical positions, with commanding vistas and transitional places participating in a cosmos that dwarfed humans as much as the great monuments dwarfed visitors to the metropole (Benitez n.d.; Isbell and Vranich 2004; Vranich 1999, 2002). Carefully organized vistas framed the façades of platforms, revetted with megalithic stonework of awesome proportion and

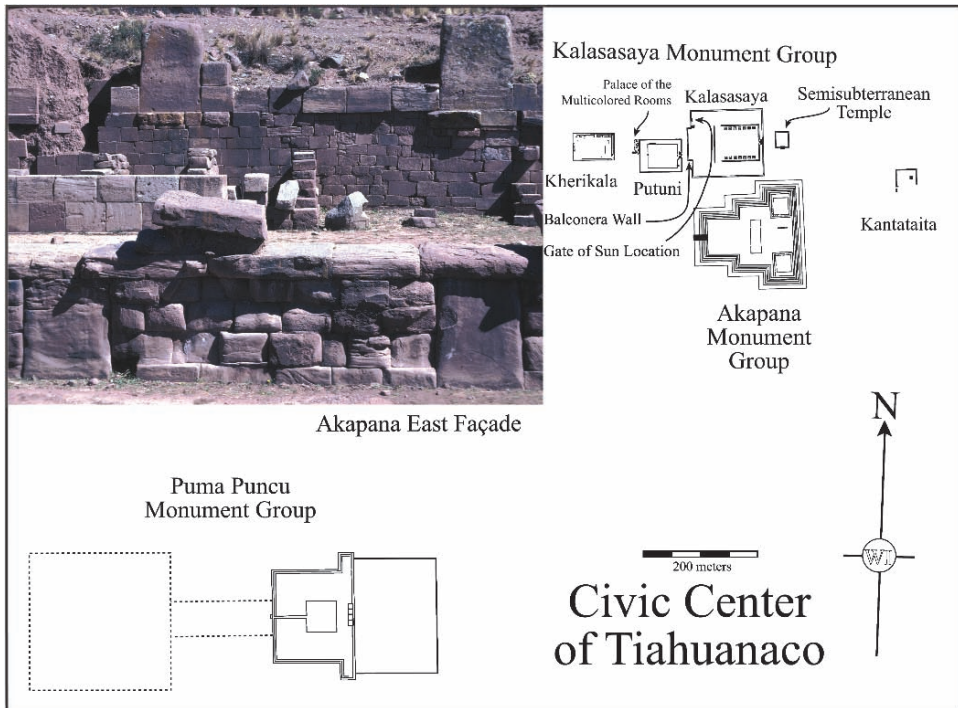


Figure 37.9. Map of Tiahuanaco's civic center and photograph of the megalithic stone revetment on the east face of the Akapana. (Map based on Arellano 1991: fig. 2 and fig. 20; Escalante 1993: fig. 113, fig. 143, fig. 187, fig. 189, fig. 194, fig. 200; Kolata 1993: fig. 5.3, fig. 5.5a, fig. 5.36a and fig. 5.36b; and Manzanilla 1992: fig. 4; Posnansky 1945: plate 1; Vranich 1999: fig. 6.3, fig. 7.1; photo by William H. Isbell)

precision (Protzen and Nair 2002). Some surfaces may have been covered with burnished metal sheets. Beyond the civic center were simple mud and thatch huts.

Huari people built with field stone (Figure 37.10), covering rough walls with mud that was often finished with shiny white plaster (Isbell et al. 1991). Whether a modest residence or an elite palace, Huari enclosed places with high walls; surviving examples of walls are 2–4 m thick and 8 m tall. Once they constituted multi-floor labyrinthine buildings, proclaiming the domestication of landscapes. Architects shut out nature by building repetitive, modular cells within rectangular block apartments. But chaos was apparently never defeated for the map of Huari reveals no comprehensive city plan. There were tendencies to maintain orientations within areas, but old buildings were razed and new ones constructed with little concern for the former urban grid. Approaching Huari, the visitor was confronted by a confusion of enormous architectural blocks, erupting like jagged white teeth from a skeletal jaw of gray volcanic rock.

Tiahuanaco lies 20 km from the shore of Lake Titicaca, where the valley narrows and rises sharply, providing a unique view of the sacred snowcapped mountain of Illimani to the east, and a fading view of the hallowed lake in the west. The southern horizon is dominated by the three peaks of the, spiritually empowered, Quimsachata range (Alexei Vranich, personal communication). Before the Akapana pyramid was constructed, blocking the old horizon view, the south celestial pole was directly over the highest peak of Quimsachata

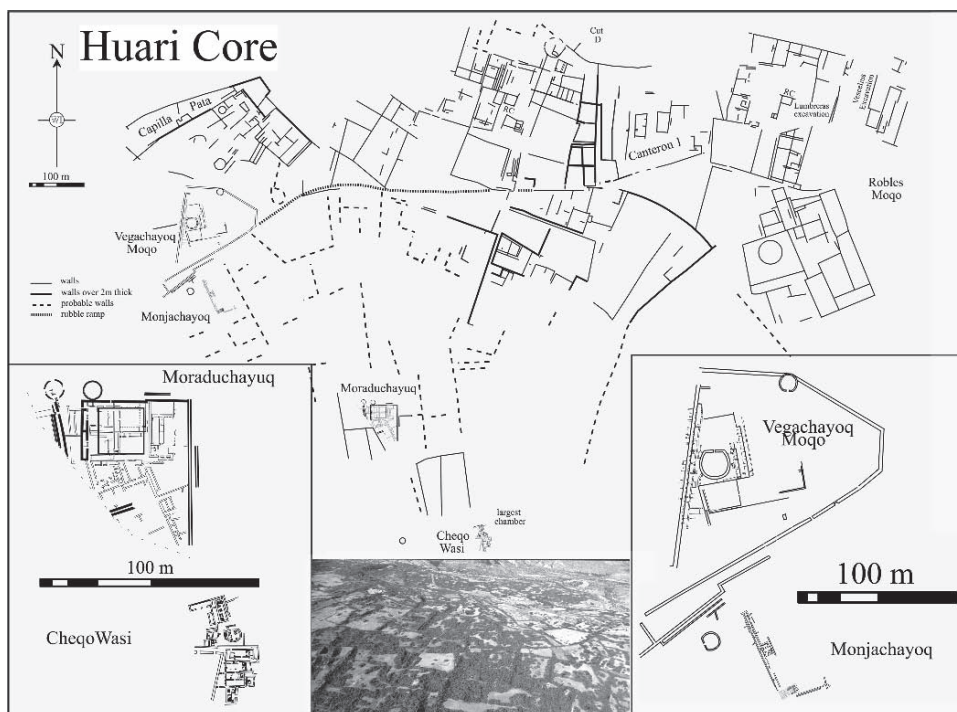


Figure 37.10. Civic center of Huari and air photo of massive, fieldstone walls of orthogonal cellular architecture in the vegetation-covered northern sector of the city. (Map and photo by William H. Isbell)

when viewed from Tiahuanaco's Semisubterranean Temple, through its entrance. From this vantage, dark cloud constellations of the Milky Way appeared to ascend from, and return to, the Semisubterranean temple (Benitez n.d.).

Huari was sited on a long spur of elevated land that projects from the valley side, with deeply entrenched streams surrounding it. Success of the city probably reflected new irrigation technology, based on long canals through difficult terrain, providing water to residents as well as irrigated terraces on slopes below. Approaching the city travelers ascend and descend the broken valley terrain. The city comes into sight, is lost, comes into sight again, disappearing and reappearing, until the trail narrowed into a walled street in which visibility was limited to pedestrians before and behind, and a slice of sky above.

Tiahuanaco underwent a dramatic transformation between AD 600 and 700 (Isbell and Vranich 2004; Kolata 2003; Vranich 1999, 2002) that established new monumental standards for civic architecture and greatly increased the resident population. New international ceramic styles replaced many of the old pottery shapes, implying changes in cuisine as well as comensal etiquette – probably associated with new feasting events linked to the SAIS religious innovation. Old buildings, the Semisubterranean Temple, and perhaps the Kalasasaya and poorly understood Kerikala, were selectively dismantled (Couture 2004; Couture and Sampeck 2003) to build new structures that included the Putuni, the remodeled Kalasasaya, the Kantatayita, and, most visibly, the towering Akapana pyramid. At the western entrance to the city construction began on the Pumapuncu.

Before this urban renewal, Tiahuanaco's civic center consisted primarily of the small Semisubterranean Temple, with an early version of the Kalasasaya added somewhat later. The Semisubterranean Temple was carefully aligned to observe the Milky Way over the Quimsachata peak as well as lunar extremes. But, the old view of the southeastern horizon was blocked by the lofty new Akapana Pyramid, certainly a deliberate act. Probably at more or less the same time, renovations in the Kalasasaya added the Balconera wall (Figure 37.9), whose monumental ashlar track annual solar movement against the western horizon. Apparently, Tiahuanaco's seventh-century architectural transformations included the change from an old lunar almanac to a new solar calendar, with focal astronomical observations shifting from the Semi-subterranean Temple to the refurbished new Kalasasaya. SAIS iconography on the later Gate of the Sun expresses the solar year, so Tiahuanaco's architectural renovation probably corresponds with the adoption of SAIS supernaturals, and new ritual practices keyed to the solar year.

Tiahuanaco became the primary pilgrimage objective of the southern Andes, with its major entrance the west-facing Pumapuncu mound. Monumental buildings had deliberate circulation routes and programmed vistas. Vranich's (1999) study of the Pumapuncu indicates that visitors ascended the mound and entered a narrow corridor, probably passing through a megalithic gateway, to suddenly emerge in a courtyard with a view of the sacred Illimani Mountain, the Akapana Pyramid, and residential suburbs beyond the hallowed civic center. Along these and other routes, selected locations were probably punctuated with music, song, dance, and perhaps even costumed performances. Many of Tiahuanaco's residents were employed in maintaining the on-going spectacle, and others probably produced goods sought by visitors, including souvenirs of the holy pilgrimage.

Nineteenth- and early twentieth-century consensus was that Tiahuanaco had been a vacant ceremonial center (Squier 1877). In the mid-twentieth century dense refuse littering the entire surface was finally understood to indicate a sizable ancient population (Parsons 1968). At that time scholars were rethinking ancient American cities, arguing that many had been great demographic centers. However, arguments sometimes ran to excess. Carlos Ponce (1981) declared that Tiahuanaco's urbanized area totaled some 4 to 6 km² with a resident population of 50,000, and perhaps as many as 100,000. Alan Kolata (1993: 205) affirmed 30,000 to 60,000, with about 115,000 in the greater urbanized Tiahuanaco heartland. However, evidence was lacking, and a decade later Kolata (2003: 15) withdrew to a more modest figure of 15,000 to 20,000 inhabitants. I find this the most convincing estimate.

At Tiahuanaco's peak thousands of hectares of raised fields were under intensive cultivation in the wetlands along the shores of Lake Titicaca. In spite of continuing disagreements about ancient productivity (Erickson 2003; Kolata 1993, 2003), this widely distributed South American agricultural system appears to have provided Tiahuanaco a relatively secure agricultural base, despite high altitude and frequent frosts. It is now argued that a century-long drought beginning about AD 1100 devastated altiplano raised-field production, causing Tiahuanaco's collapse (Kolata 2003). This is thought-provoking research, but conclusions are far from confirmed.

Modern architectural reconstructions at Tiahuanaco, especially the Kalasasaya, violate the original forms. Stone blocks from some of the original walls were extracted to reconstruct others. Furthermore, artists' renderings of the metropole depict it as an open city crisscrossed by great avenues that defined a single urban grid to which pyramids and public squares were oriented (Escalante 1993). Some scholars (Kolata 1993; Kolata and Ponce 1992) add a surrounding moat, converting the civic center into a sacred island. However, much of this imagery comes from romantic speculation early in the twentieth century

(Posnansky 1910). Other Andean cities consisted of securely-walled compounds and enclosures of different sizes, with little evidence for great avenues, expansive public spaces, or a universal grid. In fact, some of the regularity of Tiahuanaco's urban grid and building orientation appearing in recent maps has apparently resulted from plotting difficult-to-locate building corners in terms of grid-based expectations, rather than the real spot.

Current ground penetrating radar and excavations at Tiahuanaco are showing that the altiplano capital was more like other Andean cities than formerly thought (Alexei Vranich, personal communication). Around the Akapana pyramid, Semisubterranean Temple, and Kalasasaya, a great gravel plaza with subterranean drains was constructed, but over older architecture, in a great urban renewal program. Later, even this plaza was being covered with rectangular enclosures, many probably the residences of elite individuals and groups.

Several compounds excavated near the center of Tiahuanaco are interpreted as palaces (Couture 2004; Kolata 1993, 2003), and, of course, archaeologists can learn a great deal about ancient political organization by examining ruins of palaces. Tiahuanaco's most extensively studied example was named the "Palace of the Multicolored Rooms." But it is very small, about 20 to 25 m long and 7 or 8 m wide, no larger than a third- or fourth-order Inca chief's home, and significantly smaller than the public building at Omo M-10, also perhaps a palace. Other Tiahuanaco architectural complexes, tentatively identified as palaces, are equally small. If these small residences were the palaces of Tiahuanaco's senior leaders, I doubt the existence of a supreme monarch. More probable would be some kind of council or senate in command of the city, with a larger number of less exalted top leaders.

Alternatively, buildings identified as Tiahuanaco's palaces may have been only part of original royal residences, such as the kitchens and retainers' quarters. The Palace of the Multicolored Rooms is attached to the rear of the Putuni, a small but monumental enclosure, that lies right behind the great Kalasasaya. Perhaps the three buildings constituted a single complex, all of which was a royal palace (Figure 37.9). Together, the form – a sequence of enclosed patios in descending size, with impressive gateways between them – bears significant resemblance to later Inca palaces, as do Tiahuanaco's Pumapuncu complex, and even the Akapana. Royal palaces of this magnitude would imply that Tiahuanaco was ruled by kings wielding astonishing power.

The Tiahuanaco rulership question has been addressed with sculpture. Tiahuanaco's monumental stone statues represent kings (Figure 37.7), with their prominence in the metropole demonstrating royal power. However, the statues seem deliberately generic, without distinguishing features. Furthermore, Berenguer (2000) points out that many of the statues carry what appear to be a kero goblet, and a snuff tablet. Paraphernalia for hallucinogenic trance seems more properly associated with shamanism than rulership, unless shamanism and rule were more integrated in Tiahuanaco sociopolitical structure than anthropologists generally imagine.

It would be attractive to use Tiahuanaco mortuary practices to identify rulers and elites, but information is scarce. Hundreds and perhaps thousands of graves were looted in the past to create spectacular private collections of Tiwanaku artifacts, but written descriptions of the tombs are not available. Archaeologically-excavated graves range from simple holes to stone-lined pits or cists, to shafts with bell-shaped chambers, to shafts with side chambers. Most graves contain a single individual, flexed and seated or reclining to one side, with several ceramic vessels, and perhaps some jewelry. Feline incense burners, often with heavily-sooted interiors, are found in some graves, and may identify burials of shamans. Small objects of gold occur, usually cut from thin sheets of foil. Tiwanaku graves from Moquegua, although mostly looted, appear similar to those of the highlands.

To date, no truly spectacular tombs have been reported from the capital, or elsewhere within the Tiwanaku sphere. The most wealthy tomb is surely the “Treasure of San Sebastián” in Cochabamba, if the casual discovery made in 1916 really represents the grave of a Tiwanaku provincial official, as consistently asserted (Berenguer 2000: 72–73). Even this find—a costume of gold consisting of a staff, sandals, wide arm and leg bracelets, two pectoral disks, belt, epaulets, necklace, ear ornaments, a large forehead ornament, a golden bowl and many sequins originally sewn onto a tunic and/or skirt—could not have weighed more than a single gold backflap of a Moche Lord from Sipan. Perhaps more significantly, the kinds of gold ornaments – broad arm and leg bracelets, circular pectorals, forehead ornament – are not shown in Tiahuanaco sculpture. If these gold objects constituted the uniform of a Tiwanaku governor, similar accessories were not shown on metropole monoliths. I suspect that the costume is not Tiwanaku, but later – the ruler of an early post-Tiwanaku kingdom.

Unlike Tiahuanaco, Huari has no megalithic pyramids. Its architecture avoided volumetric forms in favor of labyrinthine enclosures. Rough-stone masonry with gleaming white plaster was used for palaces, temples, and domestic residences (Isbell and Vranich 2004).

Some of Huari’s buildings were constructed of carefully shaped and fitted ashlar. Examples include a semi-subterranean temple at Moraduchayuq, a royal mausoleum at Monjachayoq, and noble tombs at Cheqo Wasi. Cut stones are present at Marayniyoq, and unassociated blocks are found here and there about the Huari metropole, including examples reused in late rough-stone walls. So stone-cutting was known, although megalithic masonry has not been common enough at Huari to be one of its defining architectural characteristics. Significantly, it is becoming apparent that cut stones were looted from Huari in quantities exceeding our former understanding, probably beginning in early Spanish Colonial times. Perhaps megalithic architecture was quite a lot more common in the ancient city than in its twentieth-century ruins.

Huari’s architectural compounds were carefully planned, beginning with foundations and drains, up through doorways and roofs. Most were divided into rectilinear or trapezoidal grids with a small repertoire of modular “apartments” repeated over and over, giving Huari architecture its descriptive name, “orthogonal cellular” (Isbell 1991). Circular or D-shaped buildings seem to have been temples.

The most popular modular cell consisted of an open courtyard, surrounded on three or four sides by elongated rooms or halls, about 2 m wide, of one, two, and possibly three stories. A wider room, a niche hall, or some other form might occupy one side of the patio. Around the edge of the courtyard was a broad bench raised about 30 cm above the patio floor, and about 100 to 175 cm wide, that was probably covered by long eaves of the multi-storied halls. These benches made excellent work spaces, sheltered, but well lit. By contrast, the narrow, roofed halls seem to have had only one or two doorways, and no other sources of light, so it is likely that they were dark, and fit primarily for storage and perhaps sleeping [Note 4]. Nonetheless, many patio groups were residences, and are probably best understood as apartment houses.

More or less continuous remains of stone architecture – including enormous enclosures – and dense occupational trash cover an area of about 2.5 km² at Huari. Traces of refuse and occasional walls sprawl over another 15 km² of rugged terrain. The most conservative techniques for estimating prehistoric population suggest 10,000 to 20,000 people in the city at its peak, while more liberal assumptions imply some 35,000 to 70,000 inhabitants (Isbell et al. 1991). An estimate of 20,000 to 40,000 seems most reasonable, so in all

probability, demographically, Huari and Tiahuanaco were similar, with Huari probably a bit larger at their apogees.

As a city, Huari coalesced from several earlier villages slightly before the beginning of the Middle Horizon, about AD cal 650. I suspect that its original core consisted of several palace compounds that attracted migrants to settle around them as retainers. However, Huari buildings were probably never unifunctional, but constantly “becoming.” Vegachayoq Moqo, the largest excavated area in the ancient city, appears to have begun as a palace, or royal court, with a roofed, stage-like space for formal events that overlooked an assembly space. Later, a D-shaped temple was constructed in the patio, probably a mortuary monument in honor of a deceased king or royal dynasty. Eventually a great wall was built across the court that contained many tombs for dead of modest status. So Vegachayoq Moqo seems to have begun as a palace, to become a royal mortuary monument where visitors revered high-status dead. Still later it became a cemetery for persons of intermediate and perhaps even low status, a function that may have continued until the city was abandoned. But some parts of the building, and especially the elite residential area and stage-like court, were deliberately buried as the building complex was remodeled.

Across a walled street from Vegachayoq Moqo is Monjachaoq, dreadfully looted, but containing remains of a royal tomb deep below its surface (Isbell 2004; Perez 1999). Since it is unlikely that the Monjachaoq tomb belonged to the king who resided at Vegachayoq Moqo, the southwestern portion of Huari probably included several royal palaces, occupied by a series of kings.

Monjachaoq, 0.5 km to the east, is a space initially occupied by an impressive, semi-subterranean temple of cut stone, that is so reminiscent of Tiahuanaco architecture that it might have been constructed by Tiwanaku workmen (Isbell 1991). The temple was probably built in Middle Horizon 1, about the same time Huari and Tiahuanaco intruded into the Moquegua Valley. Perhaps the two did engage in war, with victorious Huari bringing captured soldiers, experienced in Tiahuanaco megalithic construction techniques, back to their own capital to labor for new masters. But this is speculation. Perhaps stone cutting and megalithic masonry are not so difficult to reinvent semi-independently. More research is needed.

After several remodelings the Moraduchayuq temple was leveled. A rectangular enclosure was built and subdivided into standardized cells, each consisting of a patio surrounded by elongated halls, with at least a second floor that was probably of similar plan. These patio groups housed people of intermediate status, inferred to have been permanent residents, probably minor administrators within Huari’s politico-economic bureaucracy.

Refuse at Moraduchayuq contained few special tools associated with craft production or agriculture. Luxury goods imply at least some status for the residents, and large quantities of food-serving vessels suggest consumption beyond the level of households, probably institutionalized feasting. Since remains of kitchens are small enough to have been domestic, food served at feasts may have been prepared elsewhere. Moraduchayuq residents seem to have been part of a larger organization, probably Huari’s government, perhaps middle managers within the state apparatus, who offered periodic feasts to the workers they supervised (Isbell et al. 1991).

A third area excavated at Huari is Cheqo Wasi, where several concentrations of megalithic chamber tombs were found (Isbell 2004; Perez 1999). These impressive graves represent the second highest level in Huari’s social hierarchy, well above the residents of Moraduchayuq, and immediately below the royal tomb identified at Monjachaoq. Unfortunately, heavy looting makes interpretation of Cheqo Wasi difficult, and none of the

compounds was completely defined by excavators. Does this concentration of megalithic tombs represent a dedicated noble cemetery, or the mortuary rooms of several palaces that happened to intersect in this part of the city?

Huari's urban core seems too congested to accommodate the heavy flow of visitors that pilgrimage involves. Based on what we currently know, Huari's streets were narrow and walled. Visitors would have required guides to avoid losing their way in the confusing compounds between these arteries. And there were no great open spaces like the plaza of remodeled Tiahuanaco. However, several hilltops overlooking Huari have remains of extensive Middle Horizon buildings, and ample space for large numbers of campers. From the peak of Cerro Churu, where a huge rectangular ruin is located, Huari occupies the north horizon, while turning in the opposite direction reveals the Huamanga Basin with the southern Peruvian cordillera behind. On a great ridge north of Huari is Marayniyoq with Middle Horizon ruins that include spectacular megalithic construction, today reduced to foundations from looting. It has a commanding view of Huari to the south, and the opposite gaze reveals the Huanta Valley, Mantaro River, and the central Peruvian cordillera beyond. Perhaps Huari was at least a little like Tiahuanaco in serving as an objective for pilgrimage, but if so, visitors' experiences were choreographed very differently.

Huari has several stone monoliths that represent humans, all without SAIS iconography. In fact, none has any fine-line incision, the technique used for most SAIS sculptural representations at Tiahuanaco. Could Huari's statues represent kings, as suggested, but certainly not confirmed, for Tiahuanaco?

Huari has a second city – Conchopata – in the southern "Huamanga enclave" of the Ayacucho Valley (Figure 37.2; Cook and Benco 2001; Isbell and Cook 2002; Knobloch 2000; Ochatoma and Cabrera 2002; Tung and Cook 2006), only 20 to 40 ha in size. Early in its history, Conchopata seems to have competed with other settlements. Its achievement of local dominance probably related to adoption of SAIS iconography, followed by success in ritual more than in military accomplishments – although strontium analysis indicates that "trophy heads" in two of Conchopata's temples were probably foreigners, not local ancestors (Knudson and Tung in press). Perhaps Conchopata even competed with Huari at an early moment, and interacted with Tiahuanaco in the Middle Horizon 1B synthetic reconfiguration of SAIS iconography. A unique art theme shows warriors riding in reed canoes as they brandish weapons (Ochatoma and Cabrera 2002). Perhaps this represents heroes who journeyed to the altiplano, across sacred Lake Titicaca, to negotiate a new religious ideology with Tiahuanaco counterparts.

SAIS images known from Huari tend to be later than at Conchopata, and on regular-size vessels, implying their more secular nature. But little of Huari has been excavated, although a surprising recent discovery at Vegachayoq Moqo includes a textile fragment decorated with Profile Attendants. Spectacular unprovenanced textiles with SAIS icons, some of them remarkably similar to images painted on oversize Conchopata vessels have been described by William Conklin (1970, 2004). These fine weavings were surely produced in specialized highland workshops that remain to be discovered by archaeologists.

The nature of relations between Huari and Conchopata is not clear, but mortuary remains imply that Conchopata's rulers were at least two steps below the supreme dignitaries of Huari. Much of the surviving architecture seems to represent small palaces where polygynous nobles vied for power and prestige, employing feasts and banquets as one competitive medium. Wives and concubines manufactured pottery for special events, some decorated with SAIS icons. But these women were also constructing more visible new "urban woman" identities based on their control of pottery making, brewing,

and other comensal practices. Diet at Conchopata was maize-based, with no difference between men and women (Finucane et al. in press).

The Huari heartland includes several examples of planned orthogonal cellular architecture, ranging from tiny Jargampata, to immense Azángaro. These sites often include terraces and irrigation canals that were almost certainly constructed by *corveé* labor. It seems likely that all were functionally similar to Inca royal estates – rural centers of intensive agriculture, owned and managed by kings and nobles to enhance personal wealth and power. If so, “royal estates” are much more obvious around Huari than at Tiahuanaco.

Little is known about the collapse of Huari, but in the central and south highlands SAIS iconography disappeared entirely, as did urban centers and complex political units. Change was profound. However, excavations in Huari’s Moraduchayuc compound indicate gradual abandonment, so it seems that violent military conquest is unlikely, as well as similar catastrophes. In recent years we have learned that the capital was probably occupied for a century or more than formerly believed, until the end of the Middle Horizon (in Epoch 4, not Epoch 2, as formerly believed), so some progress is being made. A few scholars have sought to explain Huari’s abandonment with the same drought implicated for Tiahuanaco, but even in the altiplano this interpretation lacks confirmation, so its extension to Huari seems premature. A great deal more archaeological research is called for.

CONCLUSIONS

The rise of Huari and Tiahuanaco was linked, interactive and simultaneous. Synthetic reconfiguration of SAIS iconography and shared colonization of Moquegua are obvious aspects of the relationship, but many others are implied – from similar drinking vessels to the Tiahuanaco-like megalithic semi-subterranean temple at Huari.

SAIS icons surely represent a pantheon of deities similar to later Inca gods. They were associated with a new solar calendar as well as an annual round of ritual practices that constituted the core of a new religion embraced by both metropolises and cultural spheres. The role of this new religion in Middle Horizon conquest and expansion was surely very significant, but remains little understood today. SAIS iconography disappeared in the highlands at the end of the Middle Horizon quite utterly, so it is not surprising that analogies with Inca religion are not terribly close.

Both Huari and Tiahuanaco were capable of colonizing distant lands and setting up provincial administration similar to what is classified as “empire.” Huari used imperial strategies in provinces much more than Tiahuanaco did, but a great deal of metropole influence in both realms is not consistent with our ideas about how empires operate. Apparently alternative organizational practices remain poorly understood by evolutionary archaeology. Tiahuanaco in particular defies our understanding of its political and economic dimensions. However, both Wari and Tiwanaku diffused very distinctive material culture that was surely employed far and wide to express a new, international identity, associated with each metropole. Similarity between the two material repertoires suggests that these new identities were linked, perhaps even two variants of a single religion.

Both Huari and Tiahuanaco were large pre-industrial cities, with maximal populations exceeding 15,000 inhabitants. Both could have reached double this figure, although it appears that Huari was somewhat larger in permanent inhabitants, while Tiahuanaco received the greater numbers of pilgrims, perhaps by several orders of magnitude. Neither city seems to have been highly differentiated in terms of economic or craft specializations. Tiahuanaco

seems more ceremonial; Huari more administrative and residential. In spite of the shared religion, the two cities were remarkably different in their construction of place, including their built environments, and ideas about refuse and pollution. Together they reshaped Andean culture, shifting the focus of civilization from Peru's north coast into the highlands, hundreds of kilometers south, where the Inca Empire would appear half a millennium later.

ACKNOWLEDGMENTS I am privileged to have excavated at Huari and elsewhere in its heartland, as well as in the Tiwanaku heartland, at Iwawi. Working in both core areas has provided me a unique perspective on the interrelated rise of Huari and Tiahuanaco. Because Huari, Tiahuanaco and the Middle Horizon constitute such a broad topic, and the length of this chapter is restricted, I was obliged to eliminate much bibliography, citing only one or two recent publications of an author, where a more complete bibliography can be found. Special thanks to Alexei Vranich as well as Leo Benitez who presented lectures on their current Tiahuanaco research at SUNY Binghamton in the spring of 2006. Charles Stanish and the Cotsen Institute of Archaeology organized a conference on Tiahuanaco in May, 2006, with Vranich and his research team, Paul Goldstein, and many others, presenting their recent research. In May 2007, Mauricio Uribe and I organized a conference at the University of Chile, sponsored by Dumbarton Oaks and the Cotsen Institute, on SAIS iconography. Specialists from around the globe attended, presenting research and discussing issues. All these sources have informed my thinking as it appears here. I also thank my colleagues from recent excavations at Conchopata, including José Ochatoma, Alberto Carbajal, Anita Cook, Tiffany Tung, and Martha Cabrera. Ismael Perez shared his current work at Huari, as well. Patricia Knobloch provided many insights into iconography and chronology. Her knowledge of Middle Horizon styles and their synchronization is without equal. Joerg Haeberli generously shares his thinking with me. Helaine Silverman read and commented on an early version of this chapter. Judy Siggins, my wife, read, commented and edited several versions. Without her assistance, it would still be in preparation. I, of course, bear sole responsibility for any errors.

NOTES

1. In the literature, Wari is also spelled Huari, and Tiwanaku is also spelled Tiahuanaco (and at least one other variant). I have proposed the following orthographic conventions. Wari – the wide-spread Middle Horizon culture associated with the city of Huari. Huari – the capital city of the Wari polity and culture, located in the Ayacucho Valley of central Peru. Tiwanaku – the widespread Middle Horizon culture associated with the city of Tiahuanaco. Tiahuanaco – the capital city of the Tiwanaku polity and culture, located near the south shore of Lake Titicaca, in northwestern Bolivia.
2. Textiles were surely an important medium for SAIS iconography, and probably one in which major artistic canons were worked out. However, their delicate nature means that they do not preserve at Tiahuanaco and elsewhere in the Andean highlands except under exceptional circumstances.
3. Conchopata, the second Middle Horizon city in Huari's Ayacucho Valley, was located only 10km from the capital. It was a center where painted pottery was manufactured, which was decorated with religious icons of the SAIS and other traditions. Much of Conchopata has been destroyed by urban growth of the modern city of Ayacucho, but emergency excavations have also been fairly extensive, so Conchopata and its SAIS icons are better known than Huari and its material culture.
4. Some architectural models of Huari buildings show a row of small windows above the tops of the doorways. Windows of this kind have not been identified in excavations, but perhaps because walls are rarely preserved to sufficient height, especially if windows reduced structural stability. Also, a very small number of objects that were probably lamps have been discovered, and a few niches whose tops are preserved have traces of soot that suggest interior lighting with portable lamps.

REFERENCES

- Agüero Piwonka, Carolina, Mauricio Uribe Rodríguez, and José Berenguer Rodríguez, 2003, La iconografía Tiwanaku: el caso de la escultura lítica. *Textos Antropológicos* 14: 47-82.
- Bandy, Mathew, 2006, Early village society in the Formative Period of the southern Lake Titicaca basin. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 210-236. Springer, New York.
- Bawden, Garth, 1996, *The Moche*. Blackwell Publishers, Cambridge, MA. and Oxford, England.
- Benitez, Leonardo R., n.d., A unique lunisolar observatory and calendar in precolumbian Bolivia. University of Pennsylvania Museum of Anthropology.
- Bennett, Wendell C., 1946, The Central Andes. In *Handbook of South American Indians, Volume 2, The Andean Civilizations*, edited by Julian H. Steward, pp. 61-147. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Berenguer Rodríguez, José, 2000, *Tiwanaku: Lords of the Sacred Lake*. Banco Santiago in Association with the Museo Chileno de Arte Precolombino. Morgan Impresiones, Santiago de Chile.
- and Percy Daulesberg, 1989, El norte grande el la órbita de Tiwanaku. In *Culturas de Chile Prehistorica, desde sus Orígenes Hasta los Albores de la Conquista*, edited by J. Hidalgo L., V. Schiappacasse F., and H. Niemeyer F., pp. 129-180. Editorial Andres Bello, Santiago, Chile.
- Blom, Deborah and Jane Buikstra, 1999, Tiwanaku "colonization": bioarchaeological implications for migration in the Moquegua Valley, Peru. *World Archaeology* 30: 238-261.
- Cardona Rosas, Augusto, 2002, *Arqueología de Arequipa: de sus Albores a los Incas*. Centro de Investigaciones Arqueológicas de Arequipa, Arequipa, Peru.
- Castillo, Luis Jaime, 2001, La presencia de Wari en San José de Moro. In *Boletín de Arqueología PUCP, No. 4, 2000. Huari y Tiwanaku: Modelos vs. Evidencias, Primera Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 143-180. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Céspedes Paz, Ricardo, 2000, Excavaciones arqueológicas en Piñami, Cochabamba, Bolivia. *Boletín del Instituto de Investigaciones Antropológicas* 9: 1-14 Museo Arqueológico, Universidad Mayor de San Simon, Cochabamba, Bolivia.
- Chapdelaine, Claude, 2002, Out in the streets of Moche. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 53-88. Kluwer Academic/Plenum Publishers, New York and London.
- Chávez, Sergio Jorge, 2004, The Yaya-Mama religious tradition as an antecedent of Tiwanaku. In *Tiwanaku: Ancestors of the Inca*, edited by Margaret Young-Sánchez, pp. 70-75, 81-85, 90-93. Denver Art Museum and University of Nebraska Press, Lincoln and London.
- Conklin, William J., 1970, Peruvian textile fragment from the beginning of the Middle Horizon. *Textile Museum Journal* 1: 15-24.
- , 2004, The Fire Textile. *Hali* 133 (March-April 2004): 94-100.
- Cook, Anita G. and Nancy Benco, 2001, Vasijas para la fiesta y la fama: producción artesanal en un centro urbano Huari. In *Boletín de Arqueología PUCP, No. 4, 2000. Huari y Tiwanaku: Modelos vs. Evidencias, Primera Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 489-504. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Couture, Nicole C., 2004, Monumental space, courtly style, and elite life at Tiwanaku. In *Tiwanaku: Ancestors of the Inca*, edited by Margaret Young-Sánchez, pp. 127-135, 139-143, 146-149. University of Nebraska Press, Lincoln and London.
- and Kathryn Sampeck, 2003, Putuni: A history of palace architecture at Tiwanaku. In *Tiwanaku and its Hinterland: Archaeology and Paleoeology of an Andean Civilization. Volume 2. Urban and Rural Archaeology*, edited by Alan L. Kolata, pp. 226-263. Smithsonian Institution Press, Washington D.C. and London.
- Demarest, Arthur A., 1981, *Viracocha: The Nature and Antiquity of the Andean High God*. Peabody Museum Monographs No. 6, Harvard University, Cambridge.
- Erickson, Clark L., 2003, Agricultural landscapes as world heritage: raised field agriculture in Bolivia and Peru. In *Managing Change: Sustainable Approaches to the Conservation of the Built Environment*, edited by Jeanne-Marie Teutonico and Frank Matero, pp. 181-204. Getty Conservation Institute, Los Angeles.
- Escalante Moscoso, Javier, 1993, *Arquitectura Prehispánica en los Andes Bolivianos*. CIMA, La Paz.

- Flannery, Kent V., 2002, Prehistoric social evolution. In *Archaeology: Original Readings in Method and Practice*, edited by Peter N. Peregrine, Carol R. Ember, and Melvin Ember, pp. 225-244. Prentice Hall, Upper Saddle River, New Jersey.
- Finucane, Brian, Patricia Maita Agurto, and William H. Isbell, in press, Human and animal diet at Conchopata, Peru: stable isotope evidence for maize agriculture and animal management practices during the Middle Horizon. *Journal of Archaeological Science* 12.
- Glowacki, Mary, 2002, The Huaro archaeological site complex. In *Andean Archaeology I: Variations in Political Organization*, edited by William H. Isbell and Helaine Silverman, pp. 267-285. Plenum, New York and London.
- Goldstein, Paul S., 2005, *Andean Diaspora: The Tiwanaku Colonies and the Origins of South American Empire*. University Press of Florida, Gainesville.
- Higueras, Alvaro, 1996, Prehispanic Settlement and Land-Use in Cochabamba, Bolivia. Ph.D. Dissertation. Department of Anthropology, University of Pittsburgh.
- Isbell, William H., 1991, Huari administration and the orthogonal cellular architecture horizon. In *Huari Administrative Structure: Prehistoric Monumental Architecture and State Government*, edited by William H. Isbell and Gordon F. McEwan, pp. 293-315. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 2004, Mortuary preferences: a Huari case study from Middle Horizon Peru. *Latin American Antiquity* 15: 3-32.
- , Christine Brewster-Wray, and Lynda Spickard, 1991, Architecture and spatial organization at Huari. In *Huari Administrative Structure: Prehistoric Monumental Architecture and State Government*, edited by William H. Isbell and Gordon F. McEwan, pp. 19-53. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and Anita G. Cook, 2002, A new perspective on Conchopata and the Andean Middle Horizon. In *Andean Archaeology II: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 249-305. Kluwer Academic/Plenum Publishers, New York.
- and Patricia J. Knobloch, 2006, Missing links, imaginary links: Staff God imagery in the South Andean past. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 307-351. Springer, New York.
- and Gordon F. McEwan (eds.), 1991, *Huari Administrative Structure: Prehistoric Monumental Architecture and State Government*. Dumbarton Oaks Research Library and Collection, Washington D.C.
- and Katharina J. Schreiber, 1978, Was Huari a state? *American Antiquity* 43: 372-389.
- and Alexei Vranich, 2004, Experiencing the cities of Wari and Tiwanaku. In *Andean Archaeology*, edited by Helaine Silverman, pp. 167-182. Blackwell Publishing, Malden, MA.
- Isla, Elizabeth and Daniel Guerrero, 1987, Socos, un sitio Wari en el valle del Chillón. *Gaceta Arqueológica Andina* 14: 23-28.
- Janusek, John W., 2004, Household and city in Tiwanaku. In *Andean Archaeology*, edited by Helaine Silverman, pp. 183-208. Blackwell Publishing, Malden, MA.
- , Arik T. Ohnstad, and Andrew P. Roddick, 2003, Khonkho Wankane and the rise of Tiwanaku. *Antiquity* 77 (<http://antiquity.ac.uk/ProjGall/janusek/janusek.html>).
- Jennings, Justin and Willy Yépez, 2002, Collota, Netahaha y el desarrollo del poder Wari en el valle de Cotahuasi. In *Boletín de Arqueología PUCP*, No. 5, 2001. *Huari y Tiwanaku: Modelos vs. Evidencias, Segunda Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 13-30. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Kaulicke, Peter, 2001, La sombra de Pachacamac: Huari en la costa central. In *Boletín de Arqueología PUCP*, No. 4, 2000. *Huari y Tiwanaku: Modelos vs. Evidencias, Primera Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 313-358. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Knobloch, Patricia J., 2000, Wari ritual power at Conchopata: an interpretation of *Anadananthera colubrina* iconography. *Latin American Antiquity* 11: 387-402.
- Knudson, Kelly J. and Tiffany A. Tung, in press, Using Archaeological Chemistry to Investigate the Geographic Origins of Trophy Heads in the Central Andes: Strontium Isotope Analysis at the Wari Site of Conchopata. American Chemical Society edited volume.
- Kolata, Alan L., 1993, *The Tiwanaku: Portrait of an Andean Civilization*. Blackwell, Cambridge, MA and Oxford, UK.
- (ed.), 2003, *Tiwanaku and its Hinterland: Archaeology and Paleoeecology of an Andean Civilization, Volume 2. Urban and Rural Archaeology*. Smithsonian Institution Press, Washington D.C. and London.

- _____ and Carlos Ponce Sanginés, 1992, Tiwanaku: the city at the center. In *The Ancient Americas. Art from Sacred Landscapes*, edited by Richard F. Townsend, pp. 317-333. The Art Institute of Chicago, Chicago.
- Larco Hoyle, Rafael, 1948, *Cronología Arqueológica del Norte del Perú*. Sociedad Geográfica Americana, Buenos Aires.
- Leoni, Juan B., 2006, Ritual and society in Early Intermediate Period Ayacucho: a view from the site of Ñawin-pukyo. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 279-306. Springer, New York and London.
- Lumbreras, Luis Guillermo, 1974, *Las Fundaciones de Huamanga*. Editorial Nueva Education, Lima.
- MacNeish, Richard, Angel Garcia Cook, Luis G. Lumbreras, Robert K. Vierra, and Antoinette Nelken-Terner (eds.), 1981, *Prehistory of the Ayacucho Basin, Peru. Vol. II. Excavations and Chronology*. University of Michigan Press, Ann Arbor.
- Malpass, Michael, 2002, Sonay: un centro Wari celular ortogonal en el Valle de Camana. In *Boletín de Arqueología PUCP, No. 5, 2001. Huari y Tiwanaku: Modelos vs. Evidencias, Segunda Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 51-68. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- McEwan, Gordon F., 2005, *Pikillacta: The Wari Empire in Cuzco*. University of Iowa Press, Iowa City.
- Meddens, Frank M., 1985, The Chicha/Soras Valley during the Middle Horizon: Provincial Aspects of Huari. Ph.D. dissertation. University of London.
- Menzel, Dorothy, 1964, Style and time in the Middle Horizon. *Ñawpa Pacha* 2: 1-106.
- _____, 1968, New data on Middle Horizon Epoch 2A. *Ñawpa Pacha* 6: 47-114.
- _____, 1977, *The Archaeology of Ancient Peru and the Work of Max Uhle*. R. H. Lowie Museum of Anthropology, University of California, Berkeley.
- Morris, Craig and Adriana von Hagen, 1993, *The Inka Empire and its Andean Origins*. Abbeville Press, New York.
- Nash, Donna J. and Patrick Ryan Williams, 2002, Architecture and power on the Wari-Tiwanaku frontier. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin J. Vaughn, Dennis Ogburn, and Christine A. Conlee, pp. 151-174. Anthropological Papers of the American Anthropological Association, Number 14. Arlington, VA.
- O'Brien, Tyler, 2003, Cranial Microvariation in Prehistoric South Central Andean Populations: An Assessment of Morphology in the Cochabamba Collection, Bolivia. Ph.D. dissertation. Department of Anthropology, State University of New York at Binghamton.
- Ochatoma Paravicino, José and Martha Cabrera Romero, 2002, Religious ideology and military organization in the iconography of a D-shaped ceremonial precinct at Conchopata. In *Andean Archaeology II: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 225-247. Kluwer Academic/Plenum Publishing, New York and London.
- Owen, Bruce, in press, Rural Wari far from the heartland: Huamanga ceramics from Beringa, Majes. *Andean Past*.
- Parsons, Jeffrey R., 1968, An estimate of size and population for the Middle Horizon at Tiahuanaco, Bolivia. *American Antiquity* 33: 243-245.
- Pérez Calderón, Ismael, 1999, *Huari: Misteriosa Ciudad de Piedra*. Facultad de Ciencias Sociales, Universidad Nacional San Cristóbal de Huamanga, Ayacucho.
- Ponce Sanginés, Carlos, 1981, *Tiwanaku: Espacio, Tiempo y Cultura*. Los Amigos del Libro, La Paz and Cochabamba.
- Posnansky, Arthur, 1910, *Guía para el visitante de los monumentos prehistóricos de Tihuanacu e Islas del Sol y la Luna (Titicaca y Koaty)*. La Paz.
- _____, 1945, *Tihuanacu — The Cradle of American Man, Vols. I and II*. American Museum of Natural History, New York.
- _____, 1957, *Tihuanacu — The Cradle of American Man, Vols. III and IV*. Ministerio de Educación, La Paz.
- Protzen, Jean-Pierre and Stella Nair, 2002, The gateways of Tiwanaku: symbols or passages? In *Andean Archaeology II: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 189-224. Kluwer Academic/Plenum Publishers, New York.
- _____, and Stella Nair, 2002, Pumapuncu: plataformas y portales. In *Boletín de Arqueología PUCP, No. 5, 2001. Huari y Tiwanaku: Modelos vs. Evidencias, Segunda Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 309-336. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Rodman, Amy Oakland, 1992, Textiles and ethnicity: Tiwanaku in San Pedro de Atacama, north Chile. *Latin American Antiquity* 3: 316-340.

- Rowe, John H., 1956, Archaeological explorations in southern Peru, 1954-55. *American Antiquity* 22: 135-151.
- Schaedel, Richard P., 1951, Major ceremonial and population centers in northern Peru. In *Civilizations of Ancient America: Selected Papers of the 29th International Congress of Americanists*, edited by Sol Tax, pp. 232-243. University of Chicago Press, Chicago.
- Schreiber, Katharina J., 1992, *Wari Imperialism in Middle Horizon Peru*. Anthropological Papers of the Museum of Anthropology, No. 87, University of Michigan, Ann Arbor.
- , 2001, Los Wari en su contexto local: Nasca y Sondondo. In *Boletín de Arqueología PUCP, No. 4, 2000. Huari y Tiwanaku: Modelos vs. Evidencias, Primera Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 425-448. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- , 2005, Sacred boundaries and imperial ideologies: the Wari empire in Sondondo, Peru. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin J. Vaughn, Dennis Ogburn, and Christine A. Conlee, pp. 131-150. Anthropological Papers of the American Anthropological Association, Number 14, Arlington, VA.
- Shimada, Izumi, 1994, *Pampa Grande and the Mochica Culture*. University of Texas Press, Austin.
- Squier, E. George, 1877, *Peru: Incidents of Travel and Explorations in the Land of the Incas*. Harper and Brothers, New York.
- Stanish, Charles, 2003, *Ancient Titicaca: The Evolution of Complex Society in Southern Peru and Northern Bolivia*. University of California Press, Berkeley, Los Angeles and London.
- Steward, Julian H. (ed.), 1946, *Handbook of South American Indians: Volume 2: The Andean Civilizations*. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington D.C.
- Stübel, Alphons, and Max Uhle, 1892, *Die Ruinenstätte von Tiahuanaco im Hochlande des Alten Peru: Eine Kulturgeschichtliche Studie*. Verlag von Karl W. Hiersemann, Leipzig.
- Sutter, Richard C., 2005, A bioarchaeological assessment of prehistoric ethnicity among the Early Late Intermediate Period populations of the Azapa Valley, Chile. In *Us and Them: Archaeology and Ethnicity in the Andes*, edited by Richard Martin Reyecraft, pp. 183-205. The Cotsen Institute of Archaeology, University of California, Los Angeles, Monograph 53, Los Angeles.
- Topic, John R., 1991, Huari and Huamachuco. In *Huari Administrative Structure: Prehistoric Monumental Architecture and State Government*, edited by William H. Isbell and Gordon F. McEwan, pp. 141-164. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and Theresa Topic, 1987, The archaeological investigation of Andean militarism: some cautionary observations. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 47-55. Cambridge University Press, Cambridge and New York.
- and Theresa Lange Topic, 2001, Hacia la comprensión del fenómeno Huari: una perspectiva norteña. In *Boletín de Arqueología PUCP, No. 4, 2000. Huari y Tiwanaku: Modelos vs. Evidencias, Primera Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 102-127. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Torres, Constantino Manuel, 2002, Iconografía Tiwanaku en la parafernalia inhalatoria de los Andes Centro-Sur. In *Boletín de Arqueología PUCP, No. 5, 2001. Huari y Tiwanaku: Modelos vs. Evidencias, Segunda Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 427-454. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Tung, Tiffany A. and Anita Cook, 2006, Intermediate-elite agency in the Wari empire: the bioarchaeological and mortuary evidence. In *Intermediate Elites in Pre-Columbian States and Empires*, edited by Christina M. Elson and Alan Covey, pp. 68-93. University of Arizona Press, Tucson.
- Uhle, Max, 1903, *Pachacamac: Report of the William Pepper, M.D.L.L.D. Peruvian Expedition of 1896*. Department of Archaeology, University of Pennsylvania, Philadelphia.
- Uribe R., Mauricio and Carolina Agüero, 2002, Alfarería, textiles y la integración del norte grande de Chile a Tiwanaku. In *Boletín de Arqueología PUCP, No. 5, 2001. Huari y Tiwanaku: Modelos vs. Evidencias, Segunda Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 397-426. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.
- Vranich, Alexei, 1999, Interpreting the Meaning of Ritual Spaces: The Temple Complex of Pumapuncu, Tiwanaku, Bolivia. Ph.D. dissertation, University of Pennsylvania, Philadelphia.
- , 2002, La pirámide de Akapana: reconsiderando el centro monumental de Tiwanaku. In *Boletín de Arqueología PUCP, No. 5, 2001. Huari y Tiwanaku: Modelos vs. Evidencias, Segunda Parte*, edited by Peter Kaulicke and William H. Isbell, pp. 295-308. Departamento de Humanidades, Especialidad de Arqueología, Pontificia Universidad Católica del Perú, Lima.

- Wiley, Gordon R., 1948, A functional analysis of "horizon styles" in Peruvian archaeology. In *A Reappraisal of Peruvian Archaeology*, edited by Wendell C. Bennett, pp. 8-15. Memoirs of the Society for American Archaeology, No.4.
- _____, 1953, *Prehistoric Settlement Patterns in the Virú Valley, Perú*. Bulletin 155. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Williams, Patrick Ryan, 2003, Hydraulic landscapes and social conflict in Middle Horizon Peru. In *The Reconstruction of Archaeological Landscapes through Digital Technologies*, edited by Maurizio Forte and Patrick Ryan Williams. BAR International Series, S1151, Oxford.
- _____, and Donna Nash, 2005, Beer and Identity in the Middle Horizon Borderlands. Paper presented at the Fredrick and Jan Mayer Tiwanaku Symposium, organized by Margaret Young-Sanchez. Denver Art Museum. 14-15 January 2005.
- Zapata, Julinho, 1997, Arquitectura y contextos funerarios Wari en Batán Urqu, Cusco. In *La Muerte en el Antiguo Perú*, edited by Peter Kaulicke, pp. 165-206. *Boletín de Arqueología PUCP*, Vol. 1, Pontificia Universidad Católica del Perú, Lima.

Between Horizons: Diverse Configurations of Society and Power in the Late Pre-Hispanic Central Andes

JALH DULANTO

INTRODUCTION

This chapter is a brief review of some of the polities that developed in the Central Andes during the Late Intermediate Period—that is, between the contraction of Wari and the expansion of Inca influence over the Central Andes [Note 1]. During the LIP, polities of varying political and economic complexity emerged, expanded and collapsed. Coastal polities were, in general, more complex than highland ones and some of the coastal polities were able to expand beyond their regions, whereas few highland polities did so. The following chapter, Chapter 39, deals with the greatest of the LIP polities, the Chimú Empire. My concern here is the other “less imperial” societies that nevertheless were also the context faced by the expanding Inca empire.

Traditional interpretations of LIP societies have relied heavily on ethnohistorical documents, which are Spanish descriptions of local polities under Inca rule at the time of the Spanish conquest (e.g., Bonavia 1991; Lumbreras 1974, 1990; Ravines 1994). The epistemological problems of using Spanish descriptions of early Colonial Period polities, which had already been shaped by the Inca imperial policies and were being reshaped by the Spanish administration, to talk about pre-Inca polities are obvious (see criticisms in Netherly 1988, 1990; Salomon 1986, 1999 *inter alia*). Here I try to level the ground by using almost exclusively archaeological data to review the state of our knowledge regarding the LIP world. Archaeological information collected over the last few decades allows us to grasp, to some extent, the considerable political and economic variation that existed

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

among polities on the coast and in the highlands during the several centuries of the LIP, ca. AD 1000–1400.

First, some cautionary notes are in order. In terms of political and economic organization, I used the term “polity” in a very general sense concerning the political and economic integration of the populations so as to avoid the current situation of scholars applying their own criteria to assess complexity; this has created a rather lax analytical situation. With regard to space, I use the term “region” in a very general sense as well, mostly relying on Rowe’s (1946) definition of regions as the Inca provinces at the time of the Spanish conquest. I do so because this is the definition used by most of the scholars whose work I review here. Proper evaluation of these regions in geographical and cultural terms is also a task that still needs to be accomplished. I employ the traditional division of the Central Andes in six areas: north coast, north highlands, central coast, central highlands, south coast and south highlands (Figure 38.1). The regional and local chronologies mentioned in the text are diagrammed in Figures 38.2 and 38.3.

THE NORTH COAST

Two large-scale expansive polities developed on the north coast during the LIP: Sicán and Chimú. Sicán developed between ca. AD 900–1350. Its center was first in Batán Grande (Shimada 1981, 1990, 1995, 2000) and later in Túcume (Heyerdahl et al. 1995). Both Sicán centers are located in the La Leche–Lambayeque valleys in the northern part of the north coast. The Chimú polity or empire developed between ca. AD 1100–1470. Its heartland was the Moche Valley in the southern part of the north coast and its capital city was Chan Chan (see Figure 39.1 in Chapter 39). This valley was previously the locus for the development of the great Moche center of Huaca del Sol–Huaca de la Luna (“los Mochicas del sur,” discussed in Chapter 36 in this volume) in the Early Intermediate Period.

The origins of the Early Sicán (AD 750–900) and Early Chimú (AD 900/1000–1200) polities are still poorly understood. However, their development, expansion, and collapse during the Middle Sicán (AD 900–1100) and Late Sicán (AD 1100–1375), and the Middle Chimú (AD 1200–1300) and Late Chimú (AD 1300–1470) phases, respectively, are well known on the basis of extensive and systematic archaeological surveys and excavations in a number of sites. The development of these polities, especially during their middle and late phases, had important repercussions in other areas, particularly in the north highlands and on the central coast (see below).

These two polities managed to expand and maintain large multi-valley systems of artificial irrigation, build impressive public monumental architectural complexes (see, e.g., Figure 38.4), control far-reaching and complex trade networks, and produce large amounts of fine manufactured goods, among other unparalleled accomplishments in the Central Andes. Sicán controlled a core territory composed of the La Leche, Lambayeque, and Zaña valleys and exerted its influence from the Piura Valley to the north to the Jequetepeque Valley to the south. Chimú controlled a core territory composed of the Chicama, Moche and Virú valleys; it eventually conquered Sicán around AD 1375, and expanded over the whole north coast and far north coast from the Tumbes Valley to the north to the Huarmey Valley to the south. Chimú was able to control this area for less than a hundred years before being itself conquered by the Incas around AD 1470.

The contrast between these two extremely complex north coast polities and other contemporaneous polities of the Central Andes is dramatic, as will be seen below.



Figure 38.1. Main areas, regions, and sites mentioned in the text. (Jalh Dulanto)

THE NORTH HIGHLANDS

Two regions of the north highlands have been the focus of archaeological research of a regional scope: Cajamarca and Huamachuco. Although information available for the LIP occupations in these two regions is limited, a tentative reconstruction of north highland political and economic organization is possible to a degree.

AD		North Coast			Central Coast				South Coast				
		Sican	Chimu	Supé	Chancay		Chillon	Ychsma	Chincha	Ica			
1550-1571	Early Colonial				Chancay Propio 3	Fase 3B			Post-Chincha Chincha (Terminal)		Ica 10		
1500-1534					Chancay Propio 2								
1476-1500	LH	Inka	Inka	Supé Inca			Late Ancon II	Late Ychsma B		Inka		Ica 9	
1450-1476	LIP 8							Late Ychsma A			Inka	Ica 8	
1425-1450	LIP 7	Chimu										Ica 7	
1400-1425			Late Chimu	Late Chimu		Fase 3A			Late Chincha		Ica 6		
1375-1400	LIP 6											Ica 5	
1350-1375								Middle Ychsma AB				Ica 4	
1325-1350	LIP 5											Ica 3	
1300-1325			Middle Chimu									Ica 2	
1275-1300	LIP 4	Late Sican			Black-on-White	Fase 2			Chincha Tradition		Ica 1		
1250-1275													
1225-1250													
1200-1225													
1175-1200													
1150-1175						Late Ancon I					Ica 10		
1125-1150	LIP 3											Ica 9	
1100-1125												Ica 8	
1075-1100												Ica 7	
1050-1075												Ica 6	
1025-1050	LIP 2						Early Ychsma B				Ica 5		
1000-1025											Ica 4		
975-1000											Ica 3		
950-975						Teatino			Proto-Chincha (Early Chincha)		Ica 2		
925-950	LIP 1	Middle Sican	Early Chimu								Middle Ica	Ica 1	
900-925													
875-900													
850-875													
825-850						Fase 1					Ica Epigonal		
800-825													
775-800	MH	Early Sican		Middle Supé	Three Color / Epigonal		Middle Ancon II	Early Ychsma A			Epigonal (Early Ica)	Pinilla	
750-775													

Figure 38.2. Chronologies for the coastal regions. (Jalh Dulanto)

AD		North Highlands					Central Highlands			South Highlands	
		Cajamarca	Huamachuco				Upper Mantaro	Tarma-Chinchaycocha	Cusco		
1550-1571	Early Colonial										
1534-1550											
1500-1534	LH	Cajamarca V	Inka	Sazón			Santa Bárbara	Arhuaturo-Inca	Wanka III	Inca	Inca Period
1476-1500											
1450-1476	LIP 8										
1425-1450											
1400-1425	LIP 7										
1375-1400	LIP 6	Final Cajamarca	Late Huamachuco					Arhuaturo	Wanka II		
1325-1350											
1300-1325	LIP 5										
1275-1300											
1250-1275	LIP 4										
1225-1250											
1200-1225											
1175-1200											
1150-1175											
1125-1150	LIP 3	Cajamarca IV		Toro	Phase 4	Yuraccama	Tuscán	Matapuquio	Wanka I	"LIP"	Killke (Early Inca) Period
1100-1125											
1075-1100											
1050-1075											
1025-1050	LIP 2										
1000-1025		Late Cajamarca	Middle Huamachuco II								
975-1000											
950-975	LIP 1										
925-950											
900-925											
875-900											
850-875											
825-850											
800-825	MH										
775-800											
750-775											

Figure 38.3. Chronologies for the highland regions. (Jalh Dulanto)



Figure 38.4. The Late Sicán center of Tucume (from Kosok 1965:171: fig. 56).

Cajamarca and Huamachuco show some important historical similarities. Both regions had important centers during the late EIP and/or the early MH. Coyor in Cajamarca, and Marcahuamachuco in Huamachuco, seem to have been the centers of important polities. Although it is not clear whether or not these centers were able to control their entire regions, it is certain that they were not state-level or state-organized societies. We know very little about the Wari presence in Cajamarca, but Wari is obvious in Huamachuco. Archaeologists agree that the decline of Wari brought about radical changes in both regions. During the late MH and LIP, the local polities that had emerged and developed in both regions during the late EIP and/or the early MH collapsed, and were slowly replaced by new polities during the late LIP. While during the late EIP and early MH the polities located in the intermountain valleys seem to have been more important than any other polities in the region, during the late LIP the polities located in the upper sections of the coastal valleys to the west seem to have benefited from their strategic location in relation to Sicán and/or Chimú and overshadowed all the polities located in the intermountain valleys. Archaeologists working the north highlands disagree on the extent of these local polities, but if we take into consideration the information available for better studied highland regions in the central and south highlands (see below) we should cast doubt on the idea that any of the north highland LIP polities were able to control their entire regions.

Cajamarca

Daniel Julien (1988, 1993) provides important information about the LIP in the Cajamarca region. His analysis of settlement patterns in the Cajamarca Valley shows a significant reduction in the number of settlements during the Late Cajamarca phase (AD 850–1200). Julien interprets this reduction in the number of settlements as the result of population reduction and/or dispersion, probably linked to the end of Wari influence in the region and the collapse of the EIP/MH regional polity organized around the center of Coyor in the Cajamarca Valley. His analysis also shows a significant increment in the number of settlements and the development of a site-size hierarchy during the following phase –the Final Cajamarca phase (AD 1200–1532). Accordingly, Julien interprets this increment in the number of settlements as the result of population increase and aggregation probably linked to the emergence of a new regional polity organized around one of the large centers located in the upper sections of the coastal valleys to the west.

Julien observes that it is during the Final Cajamarca phase that settlements like Guzmango Viejo or Tantarica in the western slopes of the cordillera to the coast, as well as Santa Delia in the Cajamarca Valley (Ravines 1985: 103) became particularly large (> 20 ha). These centers have a larger number of clearly distinguishable elite residential units as well as a greater number of fine ceramics than any earlier sites. It is clear that they are top ranked settlements in the region. At least the centers of the upper sections of the coastal valleys to the west probably benefited from their strategic location in relation first to Sicán and later to Chimú. Julien interprets the changes of the Final Cajamarca phase as evidence of a renewed prosperity and integration of the region around one of these centers. However, whether one or more polities existed in the Cajamarca region during this time – and, for that matter, also in earlier periods- remains to be clarified. Watanabe (2002) argues that the differences in the architecture and pottery styles from different centers are enough to suggest that the region was not politically integrated before the Inca conquest. In his opinion, it is with the establishment of the Inca administrative center of Cajamarca, in the place where the modern city is located today, that the region became politically integrated

for the first time. In any case, the prominence of the centers of the western slopes of the cordillera to the coast during the LIP is clear. A similar situation has been observed in the Huamachuco region to the south.

Huamachuco

Following the pioneering work of Max Uhle (1900), several archaeologists have conducted research of a regional scope in Huamachuco (Krzanowski 1980; Thatcher 1972, 1974, 1977, 1979a, b; J. Topic and T. Topic 1982; T. Topic and J. Topic 1984, 1987, 1990a, b). All of them provide important information about the LIP in the Huamachuco region.

Theresa Topic and John Topic's (1990a) archaeological surveys and excavations in several sites of the region show that the abandonment of the impressive Wari center of Viracochapampa was followed by radical changes. According to them, during the Late Huamachuco phase (AD 700–1000), the north-south exchange network controlled by Wari, but benefiting local elite groups residing in Marcahuamachuco, was disarticulated. As a result the quantity of imported goods decreased markedly and the prestige of Marcahuamachuco declined. The site continued to be occupied, but the people residing there ceased to erect new buildings. In addition, Cerro Amaru, the most important ceremonial center of the region, and Cerro Sazón/Cerro Tuscán, one of the largest settlements, were both abandoned. During the next phase, Tuscán (AD 1000–1476), Marcahuamachuco was finally abandoned, and new centers like Cerro Sulcha, Carpaico, Huasachugo, and Cuidista emerged in the upper sections of the coastal valleys to the west. In their opinion, these western centers benefited from their strategic location in relation to the Chimú polity that was expanding on the north coast. The Chimú did not expand into the highlands but were part of an east-west exchange network, controlled by the highland polities and greatly benefiting them. During the Santa Barbara phase (AD 1476–1534), corresponding to the Inca conquest, these western polities declined in importance, and a regional center was again established in the intermountain area, probably where modern town of Huamachuco is located. The changes described by the Topics for Huamachuco are quite similar to those observed by Julien for Cajamarca.

Krzanowski (1980) offers a different description of the changes that took place in the Huamachuco region. He identifies three traditions—Pelón (IP-EH), Huamachuco (EH-MH2B) and Yuraccama (MH1B-LH)—that overlap in time. Krzanowski interprets the overlap of these traditions as the result of the gradual change from one tradition to the other, which probably involved population replacements. The Pelón tradition is not relevant for the LIP, but the other two are. According to Krzanowski, the Huamachuco tradition reached its maximum splendor by the end of the EIP and beginning of the MH. At this point in time, it was characterized by large settlements, monumental architecture, stone sculpture, and showed a strong Cajamarca influence. As indicated above, the Topics describe this period as one of political integration around Marcahuamachuco. During the Amaru phase (MH1B), which was the short period of Wari influence on the region, two traditions co-existed with one another: the local Huamachuco tradition and the foreign Yuraccama tradition. Krzanowski hypothesizes that the Yuraccama tradition belongs to Quechua speaking people who migrated from the south, entered the Huamachuco region, established themselves in areas that were not previously occupied, began to practice intensive terrace agriculture, and gradually mixed with the local populations. At the same time, Cajamarca influence began to disappear in the region, and hilltop fortified settlements began to appear. As in other Central Andean regions, the presence of these hilltop fortified settlements is

interpreted as the product of constant violent confrontations between multiple small and autonomous polities.

Other North Highland Regions

Information available for the highlands north of Cajamarca and to the south of Huamachuco is very limited. Hopefully, new research in the Conchucos region, south of Huamachuco, will fill in some of this gap in the near future (see Herrera and Lane 2004; Lau 2002).

THE CENTRAL COAST

Division of the central coast into regions for this period is very difficult. Following Rowe (1946), each coastal valley could be considered its own region. However, like their counterparts on the north coast, some central coast polities seem to have controlled more than one valley. The Chancay polity, for example, seems to have controlled both the Huaura and Chancay valleys and exerted its influence over at least some of the valleys to the north (probably the Supe Valley) and south (the Ancón area). The Ychsma polity is another of these multi-valley polities. It seems to have controlled the Rímac and Lurín valleys and exerted its influence over at least some of the valleys to the south (probably the Mala Valley). Although the lower section of the Chillón Valley is closer to the Rímac Valley, it seems to have been the seat of an autonomous polity, the Collique polity. Furthermore, the Chillón Valley seems to have been a buffer zone between the Chancay and Ychsma polities. Analysis of the distribution of several distinct types of ceremonial/administrative architecture and pottery styles supports this separation of the Chancay and Ychsma polities by the Collique polity in between. Unfortunately, the LIP occupations in the central coast valleys north of the Huaura Valley (Fortaleza, Pativilca, and Supe) and south of the Lurín Valley (Mala, Asia, and Cañete) are virtually unknown. Therefore, the northern limits of the Chancay polity and the southern limits of the Ychsma polity have not been determined.

North coast influence—first from Sicán and later from Chimú—can be seen fairly well over the central coast throughout the LIP.

Huaura-Chancay

Archaeological reconnaissances and excavations have been conducted in both the Huaura (Cárdenas 1977, 1978, 1988; Miasta and Merino 1986) and Chancay valleys (e.g., Agurto and Sandoval 1974; Horkheimer 1962, 1965; Kroeber 1926; Murro et al. 1997; Uhle 1926; Vidal 1969). Although there have been no systematic programs of investigation, information available for a few of the largest settlements permits a general assessment of the LIP.

Krzanowski's (1991a, c) description of some of these settlements suggests that the Huaura and Chancay valleys, as well as some of the valleys to the north and south, were controlled by a polity, or perhaps a group of polities, with at least some degree of political and economic integration. Two settlements stand out in the Chancay Valley: Pisquillo Chico and Lauri. Both are large settlements (> 20 ha), with public buildings, elite and non-elite residential buildings, and cemeteries. Some of the public buildings are of a distinct type of public architecture that Krzanowski calls "montículos piramidales tronco-cónicos." These ceremonial/administrative buildings are basically rectangular enclosures, each of them with a small pyramid, of variable length and width but less than 8 m in height, that

has a centrally placed direct ramp on one of its sides, and a number of rectangular rooms around it, one of which is a large open patio. Pisquillo Chico has at least nine of these buildings, while Lauri has at least six. Some smaller settlements (< 2 ha), such as Casa Blanca B in the Huaura Valley, also have this type of building. These ceremonial/administrative buildings are particularly important because they are quite similar in appearance and internal organization to the Chimú “ciudadelas” (see Chapter 39 in this volume). The same can be said for another type of ceremonial/administrative building, characteristic of the Rímac and Lurín valleys, called “pirámides con rampa” (see below). This is but one of the important similarities we observe between the north coast and central coast polities during the LIP (see articles in Krzanowski 1991b).

Ancón-Chillón

Dillehay (1976, 1977, 1979) and Silva (1996) conducted systematic archaeological surveys in the Chillón Valley. They documented relationships between the populations occupying the lower and upper sections of the valley. This was a situation of competition and cooperation between coastal and highland populations.

The Chillón Valley is also important in documenting relationships between the northern central coast (from the Chancay Valley to the north) and the southern central coast (from the Rímac Valley to the south). It is notable that “montículos piramidales tronco-cónicos”, a distinct type of Chancay ceremonial/administrative building, are found in the two valleys to the north of the Chillón Valley (Chancay and Huaura), while the “pirámides con-rampa”, a distinct type of Ychsma ceremonial/administrative buildings (see below), are found in the two valleys to the south of the Chillón Valley (Rímac and Lurín), yet neither are found in the Chillón Valley itself. Something similar occurs with pottery styles. Both Chancay and Ychsma styles of pottery are commonly found in the lower and middle sections of the Lurín Valley, but they are rarely found, respectively, to the south and to the north of the Chillón Valley. Proper definition of the Chillón Valley as a buffer zone obviously requires more information from these other areas to the north and south.

Rímac-Lurín

The Rímac and Lurín valleys have been the focus of a number of archaeological reconnaissances and excavations (Agurto and Watanabe 1974; Earle 1972; Eeckhout 1999; Engel 1983; Feltham 1983, 1984; Milla 1974; Ravines 1985; Stumer 1954; UNI-Ford 1994 *inter alia*) and have seen more investigations than all the other central coast valleys together [Note 2]. However, there was no long-term archaeological research of a regional scope. Fortunately, recent projects at Tablada de Lurín and Pueblo Viejo (Proyecto Arqueológico Lomas de Lurín directed by Krzysztof Makowski), Cajamarquilla (Proyecto Arqueológico Cajamarquilla directed by the Fundación Yachaywasi), and Pachacamac (the Proyecto Arqueológico Ychsma directed by Peter Eeckhout, the Pachacamac Archaeological Project directed by Izumi Shimada, the Proyecto Arqueológico Lomas de Lurín directed by Krzysztof Makowski) are correcting this situation.

A distinct type of ceremonial/administrative building called “pirámides con rampa” by Arturo Jimenez Borja (1985) (Figure 38.5) is particularly important to understand the economic and political organization of the Rímac and Lurín valleys (see Bazán 1992; Bueno 1975, 1977, 1982; Dolorier 1998; Dulanto 1999; Eeckhout 1995, 1999, 2000; Franco 1998; Jiménez Borja and Bueno 1970; Paredes 1990; Paredes and Franco 1987; Shimada 1991 *inter alia*). These buildings are very similar to the Chimú “ciudadelas” and the Chancay “montículos



Figure 38.5. Pyramid With Ramp No. 1 in Pachacamac. (Servicio Aerofotográfico Nacional, photo No. Rn-9908, 1960).

piramidales tronco-cónicos” in both general appearance and internal organization, though not necessarily in size. Izumi Shimada’s description of this type of building is straightforward. “The ‘Pyramid,’ in reality, is a large, multilevel, terraced mound with centrally placed, short, direct ramps linking one level to the next ...built at the far end of a rectangular walled enclosure, with limited, indirect access” (Shimada 1991: XL). A comparative analysis of the location, area, volume, and orientation, among other characteristics, of nearly forty “pirámides con rampa” located in the Maranga-Chayavilca, Huaquerones, and Monterrey sites in the Rímac Valley, and in the Pachacamac, Pampa de Flores and Tijerales sites in the Lurín Valley, shows that these buildings might reveal the regional organization of the local populations according to principles of hierarchy and duality, with an emphasis on the material and symbolic management of these two valleys’ hydraulic systems (Dulanto in Conlee et al. 2004: 219; Dulanto 1999). If this is the case, the similarity with north coast patterns of political and economic organization (Netherly 1976, 1984, 1990) would be notable.

However, as Villacorta (2004) clearly points out, a number of settlements, many of them with monumental architecture of a type different than the “pirámides con rampa,” should be considered in the characterization of the economic and political organization of the Rímac and Lurín valleys during the LIP. The large center of Maranga-Chayavilca, in the Rímac Valley, is one of these cases. The EIP/MH and LIP/LH occupations of this large architectural complex are the largest of the whole central coast. In pure archaeological terms (i.e., settlement area, number of monumental buildings, volume of monumental buildings, etc.) this center is as important as, or even more important than, Pachacamac. Yet, the site is practically unknown (but see Canziani 1987). The importance of this site has been significantly played down by the importance attributed to Pachacamac in the ethnohistorical documents.

North of Huaura, South of Lurín

The LIP in the central coast valleys north of the Huaura Valley (Fortaleza, Pativilca, and Supe) and south of the Lurín Valley (Mala, Asia, and Cañete) is still poorly understood. North of the Huaura Valley, in the Fortaleza Valley, Jimenez Borja excavated at the Fortaleza de Paramonga, a large monumental site with at least LIP and LH occupations. The latest buildings of the site are built in a distinct coastal Inca style of architecture and clearly resemble the Temple of the Sun in Pachacamac (Hyslop 1990). Unfortunately, the results of Jimenez Borja's excavations have never been published. Both Chimú and Chancay style pottery have been recovered in a number of sites in this valley, for instance at Cerro La Horca. In the Supe Valley, Uhle (1925) excavated MH ("Middle Supe") as well as LIP and LH ("Late Chimú" and "Supe Inca") contexts (see Kroeber 1925). Cárdenas and Hudtwalcker (1997; Hudtwalcker 1996) have recently excavated several MH and LIP burials in Puerto Supe. Proper documentation of MH, LIP, and LH occupations in the Fortaleza, Pativilca and Supe valleys is crucial to understand the interaction between late pre-Hispanic north coast and central coast polities, including the Chimú expansion to the south, and Inca conquest of both coastal areas.

The situation of archaeological research south of the Lurín Valley is very similar. In the Mala Valley, during the MH, a local variant of the MH Cerro del Oro style of the Asia and Cañete valleys was common, but, during the LIP, it was replaced by a local variant of the Ychsma style of the Rímac and Lurín valleys (Bonavía 1959; Gabe 2000). Perhaps Mala was a buffer zone between the northern Ychsma polity and the polities of the Asia and Cañete valleys. Unfortunately, archaeological work in the Asia and Cañete valleys is limited. The excavations of Angeles and Pozzi-Escot (Angeles and Pozzi-Escot 2000, 2002, 2004) in Huaca Malena in the Asia Valley, and Marcus' (1987) excavations in Cerro Azul in the Cañete Valley are two notable exceptions. Of particular importance is the discovery of early LIP Sicán style textiles in Huaca Malena, very similar to those recovered in Ancón and Pachacamac.

Interestingly, along the actual shoreline of the central coast there are a series of LIP/LH sites that are strategically located next to, or on top of, hills that overlook the sea (e.g., from north to south: Paramonga in the Fortaleza Valley, Pachacamac in the Lurín Valley, Totoritas in the Mala Valley, and Cerro Azul in the Cañete Valley; and, farther south, on the south coast: La Centinela in the Chincha Valley). These LIP/LH sites could have played some role in the Ychsma and/or Chincha, and later Inca, control of maritime trade, not to mention their possible cosmological and thus ideological significance in being located at the border between the living world and the underworld.

THE CENTRAL HIGHLANDS

In the central highlands the most heavily investigated regions are Wanka, Tarama and Chinchaycocha, which therefore constitute the focus of my comments in this section. Information for the LIP is also available for the Huánuco region to the east (e.g., Morris 1972; Morris and Thompson 1970; Thompson 1967, 1970), the Asto region to the south (e.g., Lavallée 1973; Lavallée and Julien 1973, 1975, 1983), and the south central highlands (e.g., González Carré et al. 1987; Schreiber 1993; Valdez and Vivanco 1994; Valdez et al. 1990; Vivanco and Valdez 1993).

Wanka-Tarama-Chinchaycocha

The Wanka, Tarama, and Chinchaycocha regions have been the focus of archaeological research for several decades, and for the last three they have been the focus of long term archaeological research of a regional scope (see D'Altroy 1992; Parsons et al. 2000).

Wari influence is particularly clear in the Wanka region—in sites such as Calpish and Wariwillka (Browman 1970; Flores 1959; Matos 1968; Shea 1969). However, with the exception of David Browman (1970), all scholars working in these three regions find it particularly difficult to identify MH and, to a lesser extent, LH occupations on the basis of local pottery styles alone (Costin 1986; D'Altroy 1992; Hastorf et al. 1989; Le Blanc 1981; Parsons et al. 1997, 2000). As a result proper characterization of Wari influence in the Wanka region is still pending. Fortunately, the following periods—Wanka I (AD 1000–1350), Wanka II (AD 1350–1460) and Wanka III (AD 1460–1533)—are well known.

D'Altroy (1992: 47–70) provides an excellent review of the political and economic changes that took place in the Wanka region during the Wanka I and Wanka II periods, and the following summary relies mainly on his review. Several lines of evidence show that the transition between the Wanka I and Wanka II periods (c. AD 1350) was characterized by a number of interrelated changes: population growth, population nucleation in a few centers, political centralization, social differentiation, and intensification of violent inter-group conflicts. The analysis of settlements patterns, for example, shows that between the Wanka I and Wanka II periods both the number and the size of settlements increased. Two settlements, Hatunmarca and Tunanmarca clearly stand out over all the other settlements in this regard. Settlement location shifted from less protected to more protected places. Several settlements were further protected by defensive walls. Curiously, they lack public monumental architecture, yet some show a separation of elite and non-elite residential areas. Rank-size analysis shows that the first four settlements are similar in size and larger than expected. Analysis of the distribution of pottery styles between these settlements indicates a restriction of interaction between proximate settlements. Other lines of evidence imply that the transition between the Wanka I and Wanka II periods was one of progressive social differentiation within the Wanka population. Analysis of the distribution of different types of artifacts and ecofacts among the various residential units excavated in Wanka settlements shows that domestic units were basically autonomous and were involved in the same primary production activities. The proportion of each of these activities, however, varies between settlements and between residential units within the same settlement. The only activity that seems to be exclusively associated with elite residential units is textile production. The situation is different for the consumption of food as well as utilitarian and sumptuary goods, which varies between residential units. The elite residential units enjoyed preferential access to maize, camelid meat, coca and ají, as well as to obsidian, shells, metal ornaments and other exotic products. D'Altroy (1992: 69) concludes that “the historical and archaeological data for the end of Wanka II together are consistent with the organization of moderately complex chiefdoms.”

A similar, although not identical, situation is observed in the Tarama and Chinchaycocha regions. Parsons et al. (2000: 147) have noted several changes between their EIP/MH and LIP/LH periods. These changes include: population growth (LIP/LH population increases between two and three times over the EIP/MH population), movement of agriculturalists into higher elevations within the temperate agricultural zone, an intensification of specialized herding in the puna, and an increase of unusually large sites (the special function settlements) along the boundary between high temperate agriculture and

high pasturelands. The investigators argue that during the LIP critical integration between agriculturalist and herding groups was achieved for the first time, and they propose a very interesting explanatory model. They argue that agriculturalists and herding groups were integrated into hierarchical levels of aggregation (i.e., sub-community, community, multi-community or regional, interregional, and supra-regional levels) following a dual organizational structure. LIP “centers” appear to “consist of multiple large settlements and dispersed concentrations of architecture associated with major public rituals.” These “special function settlements,” “isolated cemeteries,” and “regional storage facilities” were the “key components of LIP regional-level sociopolitical infrastructure” (Parsons et al. 2000: 191, 197). Relative to earlier periods, the LIP in the Tarama and Chinchaycocha regions was clearly a period of greater social complexity.

To what extent these detailed pictures of LIP central highland societies can be extrapolated to other highland regions to the north and to the south remains to be determined.

THE SOUTH COAST

Division of the south coast into regions for the LIP is similar to that already noted for the north and central coasts. Archaeologists consider each coastal valley its own region, and then trace the similarities and differences in material culture between each valley in order to infer the presence or absence of multi-valley entities.

Following Menzel (1959) the Chíncha and Ica valleys are regarded as the seats of politically centralized polities. The Pisco Valley, in contrast, is regarded as politically fragmented. Depending on the line of archaeological evidence one decides to emphasize, the Pisco Valley can be regarded as controlled by the Chíncha or Ica polities. If we emphasize the importance of monumental architecture, then the Pisco Valley can be seen as controlled by Chíncha, but if we emphasize the distribution of local pottery styles, then Pisco can be seen as controlled by Ica. The Nazca and Acarí valleys to the south are usually regarded as politically fragmented.

Chíncha

The Chíncha Valley is often regarded as politically more centralized than any other valley of the south coast during the LIP, mainly because of the existence in this valley of LIP settlements with monumental architecture and a unique network of straight roads connecting some of these settlements. Uhle (1924b) was probably the first to conduct archaeological reconnaissances and excavations in the Chíncha Valley. He noted the existence of several large mounds, very similar to the ones known in the Rímac Valley (see above), as well as the existence of at least one straight road connecting some of these mounds. Later, Wallace (Wallace 1959, 1970a, b, 1971) conducted archaeological reconnaissances in the Chíncha and Pisco valleys, identifying between thirty and forty LIP settlements with monumental architecture in the Chíncha Valley, as well as a concentration of similar settlements in the lower Pisco Valley. He also described in detail the network of straight roads connecting these settlements in the Chíncha Valley (Wallace 1991). The study of this road system is particularly important in our understanding of the political and economic organization of the Chíncha Valley populations during the LIP. The four major roads of the network radiate from La Centinela, which is the LIP settlement with the largest mounds in the valley (Figure 38.6). One of the roads connects La Centinela with the mouth of the Chíncha Valley. A second road is at an exact right angle to the first and runs parallel to the beach, connecting La



Figure 38.6. La Centinela in the Chincha Valley. (reframed from the Shippee-Johnson photograph)

Centinela with a smaller center known as La Centinela de San Pedro. The other two major roads are at evenly spaced intervals within this right angle and cut diagonally across the valley, according to Wallace. At least another two straight roads radiate from La Centinela de San Pedro, connecting it with the lower and middle sections of the Pisco Valley. The analysis of this network shows that these buildings and the roads connecting them might reveal not only that the Chincha polity was centralized, but also that it was organized according to principles of hierarchy and duality—a situation that is similar to that already observed for the north and central coasts. It also reinforces the idea that the Chincha polity controlled, at some point, at least the lower section of the Pisco Valley to the south.

Ica

The situation is different in the Ica Valley. In contrast to Chincha, the only LIP settlement with monumental architecture known in the Ica Valley is Ica La Vieja (Figure 38.7), which has several mounds, all of them much smaller than any of the largest mounds known in the Chincha Valley. Because of this, the Ica Valley is usually regarded as politically less centralized than Chincha. Indeed, Menzel (1959: 220–221) regarded Ica La Vieja as the seat of a “religious rather than political authority.” However, as Menzel (1976, 1977) herself noted, during the LIP, Ica, not Chincha, was the center of production of the most prestigious pottery style on the south coast. The LIP Ica style pottery was imported and/or imitated in other south coast valleys to the north (Chincha and Pisco) and to the south (Nazca, Acarí, and Yauca) and, occasionally, even in other areas of the Central Andes such as the central coast and the south highlands (Menzel and Rowe 1966). Menzel’s (1976, 1977) analysis of gravelots from LIP and LH burials excavated by Uhle (1924a) also showed the existence of sharp differences between the burials of elite and commoner groups. According to Menzel these differences were sharper during Inca times, suggesting that an already stratified society became even more stratified under imperial rule.

Nazca

In contrast to the Chincha and Ica valleys, the Nazca drainage, as well as the Acarí and Yauca valleys to the south, are usually considered to be politically fragmented during the LIP (see, especially, Menzel 1959). But Conlee (2000, 2003, 2004; Conlee et al. 2004) disagrees with this assessment of LIP Nazca. She interprets her archaeological data as

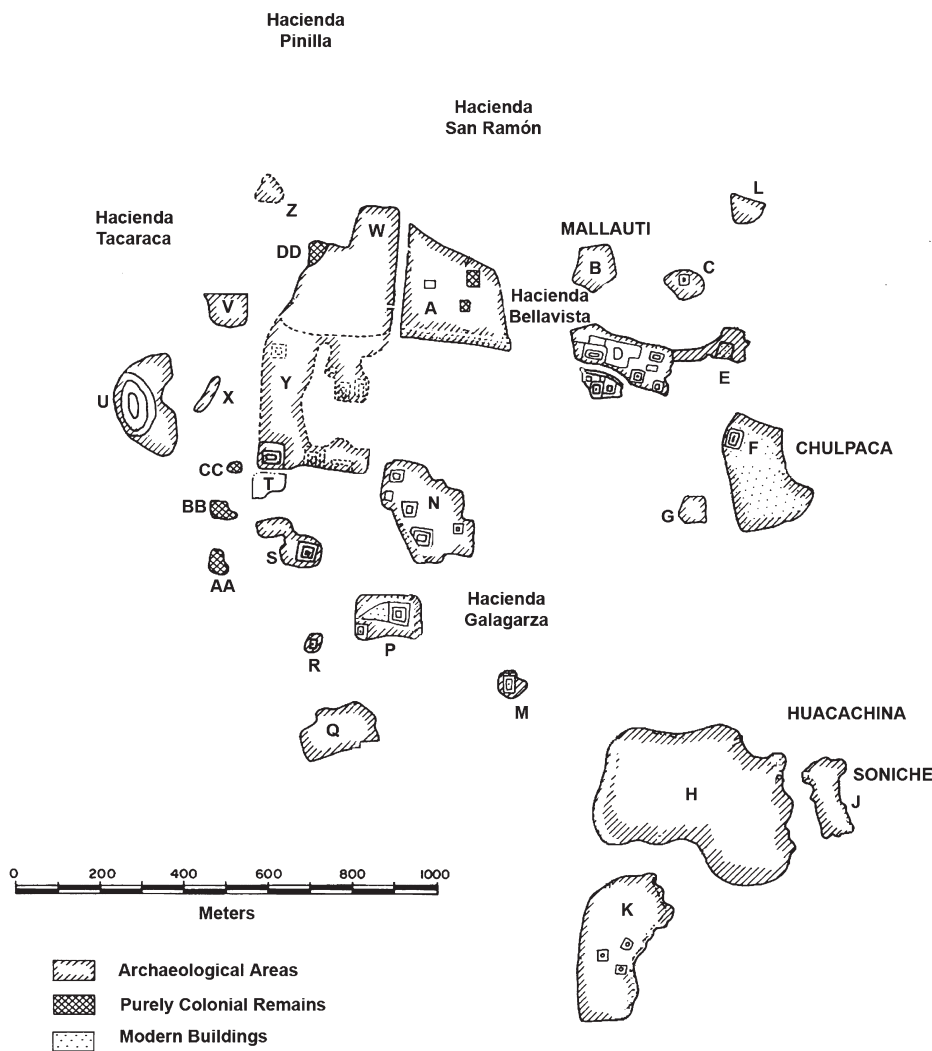


Figure 38.7. Map of Ica La Vieja. (redrawn from Menzel 1976: 17, Map 3)

showing that the Nazca drainage was unified into “an integrated regional polity that was independent of Ica and Chíncha” (Conlee et al. 2004: 227). Her analysis of settlement patterns leads her to conclude that during the LIP both the number and the size of settlements increased. Most of the settlements were agglutinated villages. Conlee’s analysis also shows that the actual coastal (littoral) area began to be occupied during this time. She infers population growth, nucleation, and expansion to new ecological areas. Other lines of evidence allow further characterization of these changes. Site-size differences as well as internal division of villages and towns, especially the large ones, probably indicate hierarchical organization both within and between settlements. In turn, location of sites in defensible places implies some degree of inter-village warfare. Piles of sling stones found on defensive terraces at the large site of La Tiza support this idea. The appearance of public

and ceremonial spaces within LIP villages, such as Pajonal Alto, and a general reduction in the size of these spaces compared to previous periods, could indicate an emphasis on local rather than regional elites. Likewise, decreased household self-sufficiency, in favor of more local- and community-level production of goods, might indicate greater elite-commoner differentiation within (and between) these communities. Independence from Ica and Chincha is certain. Still to be conclusively demonstrated is Conlee's interpretation of a unified and integrated regional polity in the Nazca drainage—again, the issue appears to be one of authorial definition and criteria as I indicated at the beginning of this chapter. Nevertheless, many of the changes she lists are akin to those reported for the LIP in other regions of the Central Andes.

THE SOUTH HIGHLANDS

In the south highlands, the Cuzco region has received great attention from archaeologists. As a result, recent advances in our understanding of the LIP in this region are significant. As in other highland regions, in the Cuzco region several autonomous polities of varying political and economic complexity seem to have coexisted during the LIP. The Lucre basin is particularly important to understand the relation between the decline of Wari and the emergence of these LIP autonomous polities, while the Cuzco basin is particularly important to understand the relation between the development of these autonomous polities and the emergence of the Inca state.

Cuzco

Systematic surveys and excavations conducted in the Cuzco Valley (Bauer 2004), the Paruro Province to the south (Bauer 1990, 1992, 1996, 1999, 2001), and the lower Vilcanota Valley to the north (Covey 2003, 2004, 2006) have produced an impressive amount of information on more than 2,000 archaeological sites, located within an area of approximately 1,200 km² that crosscuts the Inca heartland from north to south. Bauer interprets the data as showing the emergence of a centralized state in the Cuzco basin several centuries before the Inca expansion over the Titicaca basin and the central highlands (Bauer 2004; Bauer and Covey 2002; Covey 2003, 2004, 2006).

The abandonment of the great Wari center at Pikillacta and the end of Wari influence, ca. AD 1000, was followed by radical changes in the Cuzco region (Bauer 2004). During the following Killke Period (AD 1000–1400) the number and size of settlements increased in the Cuzco basin. Several new settlements were built on the north side of the Cuzco Valley proper, together with large agricultural terraces and irrigation canals, and Cuzco itself became a large settlement. To the south of Cuzco, in the present province of Paruro, the Wari Period settlements continued to be occupied. The location of the settlements in unprotected places near the farmlands, the absence of fortifications, and the extensive distribution of Killke pottery suggest that this area was controlled by the Cuzco polity from a very early time (Bauer 1990, 1992, 1996). A similar pattern is observed in Limatambo to the west of Cuzco (Heffernan 1989). The situation is, however, different in the northern areas. In the areas of Quilliscachi and Cusichaca (Kendall 1974, 1976, 1985) to the northwest of Cuzco, Killke settlements are located in defensible places on the mountain tops and usually have defensive walls. Something similar occurs in the Chit'apampa basin, the Cuyo basin and, in general, in the lower Vilcanota Valley to the north of Cuzco (Covey 2003, 2004).

A similar situation is observed in the area between the Cuzco and Lucre basins to the east that was depopulated and became a buffer zone. In this zone a large center surrounded by impressive protective walls was established at the Tipón site. In the Lucre basin to the east, the situation is quite different. The changes are less pronounced. Settlements such as Chokepukio and Minasta persisted after the decline of the Wari influence, and at least three large sites—Chokepukio, Minasta, and Cotocuyoc—appear to have coexisted with Tipón (Glowacki 2002). Architecture and different types of portable items were produced in a distinct style different from those of the Cuzco basin and other areas to the west. As a matter of fact, the persistence of Wari features in the material culture of the Lucre basin is notable.

The end of the Wari influence in the Cuzco region was followed by political fragmentation and the appearance of several autonomous polities of varying sociopolitical complexity. However, this fragmentation did not have the same intensity in all areas of the region. Apparently, the Cuzco basin populations were politically more united from the beginning. With the disappearance of Wari influence in the Cuzco basin, these communities were in a better position within the region's social and political landscape, and able to slowly and progressively expand and consolidate their power within the Cuzco region before expanding to neighboring regions, ultimately evolving into the Inca state and empire.

CONCLUSION

For many regions of the Central Andes the period between the decline of the Wari state and the growth of the Inca state is still poorly understood. In spite of the large amount of archaeological information collected over the last three decades, the LIP is still described in very simple terms as a time of complexity and splendor on the coast and simplicity and austerity in the highlands. In a sense, this is true. During the LIP the expansion and integration of several coastal polities stands out against the contraction and disintegration of highland polities. However, careful examination of regions within these coastal and highland areas shows the existence of significant differences in the political and economic organization of these units in the north, central and south sections of the Central Andes. On the coast, a sort of a gradient existed in the complexity of these polities as one moves from north to south. North coast polities seem to have controlled larger territories than central coast polities, and central coast polities seem to have controlled larger territories than south coast polities. In the highlands the situation is different. In all regions reviewed here, in the north, central, and south highlands, several autonomous polities of varying complexity seem to have coexisted. The proliferation of fortifications suggests that war was a major concern for most of these polities, and for a few centuries probably one of the causes of their small scale. Some highland regions seem to have hosted more complex polities than others (e.g., Cajamarca, Huamachuco, Wanka, and Cuzco). However, none of these polities can be described as regional polity.

Several issues remain to be investigated about the LIP. In synchronic terms, coast-coast, highland-highland, and coast-highland interactions remain to be explored. We need to investigate, for example, the interaction between north coast polities such as Sicán and Chimú and central coast polities such as Chancay and Ychsma, as well as north highland polities such as in Cajamarca and Huamachuco. Several lines of evidence reviewed here suggest that Sicán and Chimú influence over these other polities was significant. However, we still do not understand what kind of interactions Sicán and Chimú maintained with

these other polities and to what extent the political and economic organization of these other polities were shaped by their interactions with Sicán and Chimú. In diachronic terms, we still need to determine the relation between the strategies implemented by Wari to control one region and the changes brought about by the end of Wari influence in that region. In some cases, such as Huamachuco in the north highlands, direct control of the region by Wari seems to have been followed by more radical changes. In other cases, as in Lucre in the south highlands, direct control seems to have been followed by less radical changes. The same applies to the relation between the political and economic centralization of a region encountered by the Incas and the strategies implemented by the Incas to control that region. In some cases, such as Ica on the south coast, the political and economic centralization of the region encountered by the Incas seems to have promoted indirect control of the region. However, in other cases, such as Ychsma, the political and economic centralization of the region encountered by the Incas seems to have promoted direct control of the region. Clearly case studies are necessary to explain these differences.

Finally, a key problem faced by archaeologists working on the LIP is the lack of chronological resolution, particularly concerning the late MH and early LIP epochs. An increase in research targeted at this period is desperately needed in order to describe and explain the synchronic and diachronic issues I have just mentioned. Rowe's (1962) chronological scheme for the Central Andes semantically privileges horizons (Chavin for the EH, Wari for the MH, Inca for the LH) over intermediates (EIP and LIP), as if the peoples of these times languished after the demise of expansive polities or were waiting in suspense to be conquered again.

ACKNOWLEDGMENTS I would like to thank William Isbell, Helaine Silverman, and Margaret Brown-Vega for their valuable and helpful commentaries to this paper, and Chris Milan for his help with the chronological tables.

NOTES

1. In terms of time I use Rowe's (1962; see also Menzel 1976, 1977) system of horizons and intermediate periods, as originally intended, in pure chronological terms.
2. A recent volume edited by Peter Eeckhout (2004) provides key information about the late pre-Hispanic periods in the Rímac and Lurín valleys.

REFERENCES

- Agurto, Santiago, and Abelardo Sandoval, 1974, *Inventario, Catastro y Delimitación del Patrimonio Arqueológico del Valle Bajo del Río Chancay*. Instituto Nacional de Cultura, Lima.
- and Luis Watanabe, 1974, *Inventario, Catastro y Delimitación del Patrimonio Arqueológico del Valle Bajo del Río Lurín*. Archivo del Centro de Investigación y Restauración de Bienes Monumentales del Instituto Nacional de Cultura, Lima.
- Angeles, Rommel and Denise Pozzi-Escot, 2000, Excavaciones en Huaca Malena, valle de Asia. *Arqueológicas* 24: 63–75.
- , 2002, Textiles del Horizonte Medio. Las evidencias de Huaca Malena, valle de Asia. *Boletín de Arqueología PUCP* 4: 401–424.
- , 2004, Del Horizonte Medio al Horizonte Tardío en la costa sur central: el caso del valle de Asia. *Bulletin de l'Institut Français d'Etudes Andines* 33 (3): 861–886.
- Bauer, Brian S., 1990, State Development in the Cusco Region: Archaeological Research on the Incas in the Province of Paruro. Ph.D. dissertation. Department of Anthropology, University of Chicago.
- , 1992, *The Development of the Inca State*. University of Texas Press, Austin.
- , 1996, *El Desarrollo del Estado Inca*. J. Flores, transl. Centro de Estudios Regionales Andinos Bartolomé de las Casas, Cuzco.

- _____, 1999, *Early Ceramics of the Inca Heartland*. Fieldiana, Volume 31. Chicago: Field Museum of Natural History.
- _____, 2001, *Las Antiguas Tradiciones Alfareras de la Región del Cuzco*. Centro de Estudios Regionales Andinos Bartolomé de las Casas, Cuzco.
- _____, 2004, *Ancient Cuzco. Heartland of the Inca*. University of Texas Press, Austin.
- _____ and R. Alan Covey, 2002, State development in the Inca heartland (Cuzco, Peru). *American Anthropologist* 10 (3): 846–864.
- Bazán, Francisco, 1990, Arqueología y Etnohistoria de los Periodos Prehispánicos Tardíos de la Costa Central del Perú. Tesis de Licenciatura, Universidad Nacional Mayor de San Marcos.
- _____(ed.), 1992, *Arqueología de Lima. Evaluación del Término Huancho. Los Estilos de Cerámica Lima a fines del Horizonte Medio*. CREarte, Lima.
- Bonavia, Duccio, 1991, *Perú, Hombre e Historia. Volumen I: De los Orígenes al Siglo XV*. Edubanco, Lima.
- _____, 1959, Cerámica de Puerto Viejo (Chilca). In *Actas del II Congreso Nacional de Historia del Perú 1958*, Vol. 2, pp. 137–178. Lima.
- Browman, David L., 1970, Early Peruvian Peasants: The Culture History of a Central Highlands Valley. Ph.D. dissertation. Department of Anthropology, Harvard University.
- Bueno, Alberto, 1975, Cajamarquilla y Pachacamac: dos ciudades de la costa central del Perú. *Boletín Bibliográfico de Antropología Americana* 37 (46): 171–211.
- _____, 1977, El Señorío de Ichimay. *Espacio* 2: 66–71.
- _____, 1982, El antiguo valle de Pachacamac. Espacio, tiempo y cultura. *Boletín de Lima* 24: 10–29.
- Canziani, José, 1987, Análisis del complejo urbano Maranga-Chayavilca. *Gaceta Arqueológica Andina* 14: 10–17.
- Cárdenas, Mercedes, 1977, Informe Preliminar del Trabajo de Campo en el Valle de Huaura. 75 pp. Lima.
- _____, 1978, Sitios arqueológicos en Playa Chica, Huacho (valle de Huaura). *Boletín del Seminario de Arqueología del Instituto Riva Agüero* 19–20: 111–126.
- _____, 1988, Arquitectura prehispánica del valle de Huaura. In *I Simposio de Arquitectura y Arqueología*, edited by V. Rangel, pp. 101–114. Concytec, Chiclayo.
- Cárdenas, Mercedes and José Antonio Hudtwalcker, 1997, Prácticas funerarias en Puerto Supe, Dpto. de Lima, durante el Horizonte Medio. *Boletín de Arqueología PUCP* 1: 233–240.
- Conlee, Christina, 2000, Late Prehispanic Occupation of Pajonal Alto, Nasca, Peru: Implications for Imperial Collapse and Societal Reformation. Ph.D. dissertation. Department of Anthropology, University of California, Santa Barbara.
- _____, 2003, Local elites and the reformation of Late Intermediate Period sociopolitical and economic organization in Nasca, Peru. *Latin American Antiquity* 14 (1): 47–65.
- _____, 2004, The expansion, diversification, and segmentation of power in late prehispanic Nasca. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin J. Vaughn, Dennis Ogburn, and Christina A. Conlee, pp. 211–223. Archaeological Papers of the American Anthropological Association, No. 14. American Anthropological Association, Arlington, VA.
- _____, Jalh Dulanto, Carol J. Mackey and Charles Stanish, 2004, Late prehispanic sociopolitical complexity. In *Andean Archaeology*, edited by Helaine Silverman, pp. 209–236. Blackwell, Malden, MA.
- Costin, Cathy, 1986, From Chiefdom to Empire State: Ceramic Ecology among the Prehispanic Wanka of Highland Peru. Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles.
- Covey, R. Alan, 2003, The Vilcanota Valley (Peru): Inka State Formation and the Evolution of Imperial Strategies. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- _____, 2004, A processual study of Inka state formation. *Journal of Anthropological Archaeology* 22: 333–357.
- _____, 2006, *How the Incas Built Their Heartland*. The University of Michigan Press, Ann Arbor.
- D'Altroy, Terence N., 1992, *Provincial Power in the Inca Empire*. Smithsonian Institution Press, Washington, D.C.
- Dillehay, Tom D., 1976, Competition and Cooperation in a Pre-Hispanic Multi-Ethnic System in the Central Andes. Ph.D. dissertation. Department of Anthropology, University of Texas, Austin.
- _____, 1977, Un estudio de almacenamiento, redistribución y dualismo socio-político prehispánico en la chaupiyunga del valle de Chillón. *Cuadernos* 24–25: 25–37.
- _____, 1979, Pre-hispanic resource sharing in the Central Andes. *Science* 204 (6): 24–31.
- Dolorier, Camilo, 1998, Pirámides con rampa en Pachacamac: análisis espacial, crecimiento y evolución de la ciudad. *Arkinka* 32: 102–112.
- Dulanto, Jalh, 1999, Irrigated Landscapes and Sociopolitical Structures: The Regional Organization of the Ychsma Polity and the Ceremonial Center of Pachacamac. Paper read at the Center of Latin American Studies, University of Illinois at Urbana-Champaign.

- Eeckhout, Peter, 1995, Pirámide con rampa Nro. 3 de Pachacamac, costa central del Perú. Resultados preliminares de la primera temporada de excavaciones (zonas 1 y 2). *Bulletin de l'Institut Français d'Etudes Andines* 24 (1): 65–106.
- , 1999, *Pachacamac durant l'Intermédiaire Récent. Étude d'un Site Monumental Préhispanique de la Cote Centrale du Pérou*. Volume 747. Hachian Books, Oxford.
- , 2000, The palaces of the lords of Ychsma. An archaeological reappraisal of the function of pyramids with ramps at Pachacamac, central coast of Peru. *Journal of American Archaeology* 17-18-19: 217–254.
- (ed.), 2004, *Arqueología de la Costa Central del Perú en los Periodos Tardíos*. Instituto Francés de Estudios Andinos, Lima.
- Engel, Frédéric (ed.), 1983, *Prehistoric Andean Ecology: Man, Settlement and Environment in the Andes*. Humanities Press, New York.
- Feltham, Jane, 1983, The Lurín Valley, Peru, AD 1000–1532. Ph.D. dissertation. University of London.
- , 1984, The Lurín Valley Project. Some results for the Late Intermediate and Late Horizon. In *Current Archaeological Projects in the Central Andes*, edited by Ann Kendall, pp. 45–73. BAR International Series, Vol. 210. Oxford.
- Flores, Isabel, 1959, El sitio arqueológico de Wari Willca, Huancayo. In *II Congreso Nacional de Historia del Perú - Actas y Trabajos: Época Prehispánica*, pp. 177–186, Vol. 1. Lima.
- Franco, Régulo, 1998, *La Pirámide con Rampa Nro. 2 de Pachacamac. Excavaciones y Nuevas Interpretaciones*. Trujillo.
- Gabe, Carmen, 2000, *Investigaciones Arqueológicas en el Cerro Salazar - Mala*. Centro de Estudios Arqueológicos y Medio Ambiente, Lima.
- Glowacki, Mary, 2002, The Huaro archaeological site complex: rethinking the Huari occupation of Cuzco. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 267–285. Kluwer Academic/Plenum Publishers, New York.
- González Carré, Enrique, et al. (eds.), 1987, *Los Chankas: Cultura Material*. Universidad Nacional de San Cristóbal de Huamanga, Ayacucho.
- Hastorf, Christine, et al., 1989, Settlement archaeology in the Jauja region of Peru. Evidence from the EIP through the LIP. A Report on the 1986 field season. *Andean Past* 2: 81–129.
- Heffernan, Kenneth, 1989, Limatambo in Late Prehistory: Landscape Archaeology and Documentary Images of Inca Presence in the Periphery of Cuzco. Ph.D. dissertation. Australian National University.
- Herrera, Alexander and Kevin Lane, 2004, Issues in Andean highland archaeology: the Cambridge round table on Ancash sierra archaeology. *Antiquity* 78 (301). Accessed on line: <http://antiquity.ac.uk/ProjGall/herrera/index.html>, 12 July 2007.
- Heyerdahl, Thor, Daniel H. Sandweiss and Alfredo Narvaez, 1995, *Pyramids of Tucume. The Quest for Peru's Forgotten City*. Thames and Hudson, New York.
- Horkheimer, Hans, 1962, *Arqueología del Valle de Chancay*. Museo de Arte de Lima.
- , 1963, Chancay prehispánico: diversidad y belleza. *Cultura Peruana* 23: 175–178.
- , 1965, Identificación y bibliografía de importantes sitios prehispánicos del Perú. *Arqueológicas* 8.
- Hudtwalcker, José Antonio, 1996, *Prácticas Funerarias en el Sitio-I Puerto Supe durante el Horizonte Medio*. Tesis de Licenciatura, Pontificia Universidad Católica del Perú.
- Hyslop, John, 1990, *Inka Settlement Planning*. University of Texas Press, Austin.
- Jiménez Borja, Arturo, 1985, Pachacamac. *Boletín de Lima* 38: 40–54.
- and Alberto Bueno, 1970, Breves notas acerca de Pachacamac. *Arqueología y Sociedad* 4: 13–25.
- Julien, Daniel G., 1988, Ancient Cuismanco: Settlement and Cultural Dynamics in the Cajamarca Region of the North Highlands of Peru. Ph.D. dissertation. Department of Anthropology, University of Texas at Austin.
- , 1993, Late pre-Inkaic ethnic groups in highland Peru: an archaeological-ethnohistorical model of the political geography of the Cajamarca region. *Latin American Antiquity* 4 (3): 246–273.
- Kendall, Ann, 1974, *Aspects of Inca Architecture*. Ph.D. dissertation. University of London.
- , 1976, Preliminary report on ceramic data and the pre-Inca architectural remains of the (Lower) Urubamba Valley, Cusco. *Baessler-Archiv* 24: 41–159.
- , 1985, *Aspects of Inca Architecture: Description, Function and Chronology*. 2 vols. Volume 242. British Archaeological Reports, Oxford.
- Kroeber, Alfred L., 1925, The Uhle pottery collections from Supe. *University of California Publications in American Archaeology and Ethnology* 21 (6): 235–264.
- , 1926, The Uhle Pottery Collections from Chancay. *University of California Publications in American Archaeology and Ethnology* 21 (7): 265–304.

- Krzanowski, Andrzej, 1980, Przedkolumbijskie osadnictwo w dorzeczu Alto Chicama, północne Peru [Pre-Columbian Settlement Patterns in the Alto Chicama Basin, Northern Peru. Ph.D. dissertation. University of Warsaw.
- , 1991a, Chancay: una cultura desconocida? In *Estudios sobre la Cultura Chancay, Perú*, edited by A. Krzanowski, pp. 19–35. Uniwersytet Jagiellonski, Krakow.
- (ed.), 1991b, Estudios sobre la cultura Chancay. Uniwersytet Jagiellonski, Krakow.
- , 1991c, Observaciones sobre la arquitectura y patrón de asentamiento de la cultura Chancay. In *Estudios sobre la Cultura Chancay, Perú*, edited by A. Krzanowski, pp. 37–56. Uniwersytet Jagiellonski, Krakow.
- Lau, George F., 2002, Feasting and ancestor veneration at Chinchawas, north highlands of Ancash, Perú. *Latin American Antiquity* 13: 279–304.
- Lavallée, Daniele, 1973, Estructura y organización del habitat en los Andes Centrales durante el Periodo Intermedio Tardío. *Revista del Museo Nacional* 39: 91–117.
- and Michèle Julien, 1973, *Les Etablissements Asto a l'Epoque Prehispanique*. Instituto Francés de Estudios Andinos, Lima.
- , 1975, El habitat prehistórico en la zona de San Pedro de Cajas, Junín. *Revista del Museo Nacional* 41: 81–128.
- , 1983, *Asto: Curacazgo Prehispánico de los Andes Centrales*. Instituto de Estudios Peruanos, Lima.
- Le Blanc, Catherine, 1981, Late Prehispanic Huanca Settlement Patterns in the Yanamarca Valley, Perú. Ph.D. dissertation. Department of Anthropology, University of California at Los Angeles.
- Lumbreras, Luis Guillermo, 1974, *The Peoples and Cultures of Ancient Peru*. Smithsonian Institution Press, Washington, D.C.
- , 1990, *Visión Arqueológica del Perú Milenario*. Editorial Milla Batres, Lima.
- Marcus, Joyce, 1987, *Late Intermediate Period Occupation at Cerro Azul, Perú: A Preliminary Report*. Museum of Anthropology, Technical Report 20. University of Michigan.
- Matos, Ramiro, 1968, Wari-Wilka, Santuario Wanka en el Mantaro. *Cantuta* 2: 116–127.
- Menzel, Dorothy, 1959, The Inca occupation of the south coast of Peru. *Southwestern Journal of Anthropology* 15 (2): 125–142.
- , 1976, *Pottery Style and Society in Ancient Peru: Art as a Mirror of History in the Ica Valley, 1350–1570*. University of California Press, Berkeley.
- , 1977, *The Archaeology of Ancient Peru and the Work of Max Uhle*. R.H. Lowie Museum of Anthropology, University of California, Berkeley.
- and John H. Rowe, 1966, The role of Chinchá in late pre-Spanish Peru. *Ñawpa Pacha* 4: 63–76.
- Miasta, Jaime, and Manuel Francisco Merino, 1986, *Inventario y Catastro de Monumentos Arqueológicos del Valle de Huaura*. Instituto Nacional de Cultura, Lima.
- Milla, Carlos, 1974, *Inventario, Catastro y Delimitación del Patrimonio Arqueológico del Valle del Rímac y Santa Eulalia*. Instituto Nacional de Cultura, Lima.
- Morris, Craig, 1972, El Almacenaje en dos Aldeas de los Chupaychu. In *Visita de la Provincia de León de Huánuco en 1562, I. Ortiz de Zúñiga, Visitador*, edited by John V. Murra, Vol. 2, pp. 383–404. Universidad Nacional Hermilio Valdizán, Huánuco.
- Morris, Craig, and Donald Thompson, 1970, Huanuco Viejo: An Inca Administrative Center. *American Antiquity* 35 (3): 344–362.
- Murro, Juan Antonio, Vicente Cortez, and José Antonio Hudtwalcker, 1997, Resultados preliminares del Proyecto Arqueológico de Rescate Puerto Chancay '93. *Boletín de Arqueología PUCP* 1: 253–264.
- Netherly, Patricia, 1976, Local Level Lords on the North Coast of Peru. Ph.D. dissertation. Department of Anthropology, Cornell University, Ithaca.
- , 1984, The management of late Andean irrigation systems on the north coast of Peru. *American Antiquity* 49 (2): 227–254.
- , 1988, From event to process: the recovery of Late Andean organizational structure by means of Spanish Colonial written records. In *Peruvian Prehistory: An Overview of Pre-Inca and Inca Society*, edited by Richard W. Keatinge, pp. 257–275. Cambridge University Press, Cambridge.
- , 1990, Out of many, one: the organization of rule in the north coast polities. In *The Northern Dynasties: Kinship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 461–485. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Paredes, Ponciano, 1990, Pachacamac. In *Inca-Peru. 3000 Ans d'Histoire*, edited by Sergio Purin, pp. 178–195. Musées Royaux d'Art et d'Histoire de Bruxelles, Imschoot Uitgevers.

- _____ and Régulo Franco, 1987, Pachacamac: las pirámides con rampa: cronología y función. *Gaceta Arqueológica Andina* 13: 5–7.
- Parsons, Jeffrey, Charles Hastings, and Ramiro Matos, 1997, Rebuilding the state in highland Peru: herder-cultivator interaction during the Late Intermediate Period in the Tarma-Chinchaycocha region. *Latin American Antiquity* 8 (4): 317–341.
- _____, 2000, *Prehispanic Settlement Patterns in the Upper Mantaro and Tarma Drainages, Junín, Perú*. 2 vols. University of Michigan, Ann Arbor.
- Ravines, Rogger, 1985, *Inventario de Monumentos Arqueológicos del Perú: Lima Metropolitana*. Instituto Nacional de Cultura, Lima.
- _____, 1994, *Historia General del Perú. Volumen 2: Las Culturas Preincas*. Editorial Brasa, Lima.
- Rowe, John H., 1946, Inca culture at the time of the Spanish conquest. In *Handbook of South American Indians, Vol. II: The Andean Civilizations*, edited by Julian H. Steward, Pp. 183–330. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D. C.
- _____, 1962, Stages and periods in archaeological interpretation. *Southwestern Journal of Anthropology* 18: 40–54.
- Salomon, Frank, 1986, *Native Lords of Quito in the Age of the Incas: The Political Economy of North-Andean Chiefdoms*. Cambridge University Press, Cambridge.
- _____, 1999, Testimonies: The making and reading of native South American historical sources. In *The Cambridge History of the Native Peoples of the Americas*, edited by Frank Salomon and Stuart B. Schwartz, pp. 19–95. Cambridge University Press, Cambridge.
- Schreiber, Katharina J., 1993, The Inca occupation of the province of Andamarca Lucanas, Peru. In *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, edited by Michael Malpass, pp. 77–116. University of Iowa Press, Iowa City.
- Shea, Daniel, 1969, Wari-Wilka: A Central Andean Oracle Site. Ph.D. dissertation. Department of Anthropology, University of Wisconsin, Madison.
- Shimada, Izumi, 1981, The Batán Grande-La Leche Archaeological Project: the first two seasons. *Journal of Field Archaeology* 8 (4): 405–446.
- _____, 1990, Cultural continuities and discontinuities on the northern north coast of Peru, Middle-Late Horizons. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 297–392. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, 1991, Pachacamac archaeology: retrospect and prospect. In *Pachacamac: A Reprint of the 1903 Edition by Max Uhle and Pachacamac Archaeology: Retrospect and Prospect*, by Izumi Shimada. University Museum, University of Pennsylvania Philadelphia.
- _____, 1995, *Cultura Sicán: Dios, Riqueza y Poder en la Costa Corte del Perú*. Banco Continental, Lima.
- _____, 2000, Late prehispanic coastal states. In *The Inca World: The Development of Pre-Columbian Peru*, edited by Laura Laurencich Minelli, pp. 49–110. University of Oklahoma Press, Norman.
- Silva, Jorge, 1996, Prehistoric Settlement Patterns in the Chillon River Valley, Peru. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- Stumer, Louis, 1954, Population centers of the Rímac Valley of Peru. *American Antiquity* 20 (2): 130–148.
- Thatcher, John P., 1972, Continuity and Change in the Ceramics of Huamachuco, North Highlands, Peru. Ph.D. dissertation. Department of Anthropology, University of Pennsylvania, Philadelphia.
- _____, 1974, Early Intermediate Period and Middle Horizon 1B ceramic assemblages of Huamachuco, north highlands, Peru. *Ñawpa Pacha* 10–12: 109–127.
- _____, 1977, A Middle Horizon 1B cache from Huamachuco, north highlands, Peru. *Ñawpa Pacha* 15: 101–110.
- _____, 1979a, Addendum to: “Early Intermediate Period and Middle Horizon 1b ceramic assemblages of Huamachuco, northern highlands, Peru.” *Ñawpa Pacha* 17: 107–108.
- _____, 1979b, Early ceramic assemblages from Huamachuco, north highlands, Peru. *Ñawpa Pacha* 17: 91–106.
- Thompson, Donald, 1967, Investigaciones arqueológicas en las aldeas Chupachu de Ichu y Auquimarca. In *Visita de la Provincia de León de Huánuco en 1562, I. Ortiz de Zúñiga, Visitador*, edited by John V. Murra, Vol. 1, pp. 359–362. Universidad Nacional Hermilio Valdizán, Huánuco.
- _____, 1970, Habitantes del Periodo Intermedio Tardío en la sierra central del Perú (I). *El Serrano* 19: 16–20.
- Topic, John R., and Theresa L. Topic, 1982, Huamachuco Archaeological Project: Preliminary Report on the First Season, July-August 1981. Trent University, Peterborough.

- Topic, Theresa L. and John R. Topic, 1984, Huamachuco Archaeological Project: Preliminary Report on the Third Season, June-August 1983. Volume 1. Trent University, Peterborough.
- and John R. Topic, 1987, Huamachuco Archaeological Project: Preliminary Report on the 1986 Field Season. Volume 4. Trent University, Peterborough.
- and John R. Topic, 1990a, Proyecto Arqueológico Huamachuco y su Contribución a la Arqueología Andina. Informe presentado al Instituto Nacional de Cultura. Instituto Nacional de Cultura, Lima.
- and John R. Topic, 1990b, Recherches recentes a Huamachuco. In *Inca-Peru. 3000 Ans d'Histoire*, edited by Sergio Purin, pp. 210–222. Musées Royaux d'Art et d'Histoire de Bruxelles, Imschoot Uitgevers.
- Uhle, Max, 1900, Letters of Max Uhle, 1899–1900, to Mrs. Phoebe Hearst. University of California, Berkeley.
- , 1924a, Appendix A: Notes on the Ica Valley. Appendix B: Notes on sites and graves excavated. Appendix C: Ancient civilizations of Ica Valley. *University of California Publications in American Archaeology and Ethnology* 21 (3): 121–132.
- , 1924b, Explorations at Chincha. *University of California Publications in American Archaeology and Ethnology* 21 (2): 57–94.
- , 1925, Report on Explorations at Supe. *University of California Publications in American Archaeology and Ethnology* 21 (6): 257–263.
- , 1926, Report on Explorations at Chancay. *University of California Publications in American Archaeology and Ethnology* 21 (7): 293–303.
- UNI-Ford, 1994, *Inventario del Patrimonio Monumental Inmueble de Lima. Valles de Chillón, Rímac y Lurín*. Facultad de Urbanismo, Arquitectura y Artes (UNI) y Fundación FORD, Lima.
- Valdez, Lidio, and Cirilo Vivanco, 1994, Arqueología de la cuenca del Qaracha, Ayacucho, Perú. *Latin American Antiquity* 5: 144–157.
- , Cirilo Vivanco, and C. Chávez, 1990, Asentamientos Chanka en la cuenca del Pampas-Qaracha, Ayacucho. *Gaceta Arqueológica Andina* 17: 17–26.
- Vidal, Hilda, 1969, *Excavaciones Arqueológicas en Pasamayo*. Patronato del Museo de Sitio y Actividades Culturales de Ancón, Lima.
- Villacorta, Luis F., 2004, Los palacios en la Costa Central durante los periodos tardíos: de Pachacamac al Inca. *Bulletin de l'Institut Français d'Études Andines* 33 (3): 539–570.
- Vivanco, Cirilo and Lidio Valdez, 1993, Poblados Wari en la cuenca del Pampas-Qaracha, Ayacucho. *Gaceta Arqueológica Andina* 23: 83–102.
- Wallace, Dwight, 1959, Informe del reconocimiento del valle de Chincha. *Revista del Museo Regional de Ica* 10 (11): 31–40.
- , 1970a, Informe del reconocimiento del valle de Chincha. *Arqueología y Sociedad* 2: 7–16.
- , 1970b, Trabajo de campo en la costa sur del Perú. *Arqueología y Sociedad* 2: 17–27.
- , 1971, Sitios arqueológicos del Perú, valles de Chincha y Pisco. *Arqueológicas* 13: 1–31.
- , 1991, The Chincha roads: economics and symbolism. In *Ancient Road Networks and Settlement Hierarchies in the New World*, edited by Charles D. Trombold, pp. 253–263. Cambridge University Press, Cambridge.
- Watanabe, Shinya, 2002, El reino de Cuismanco: orígenes y transformación en el Tawantinsuyu. *Boletín de Arqueología PUCP* 6: 107–136.

The Chimú Empire

JERRY D. MOORE AND CAROL J. MACKEY

INTRODUCTION

The Chimú Empire was one of the largest pre-Hispanic New World states, dominating much of the north coast of Peru between ca. AD 900 to 1470 when conquered by the rival Inca Empire. The Chimú capital, Chan Chan, was established between AD 900–1000 on a flat plain near the Pacific Ocean, some seven kilometers north of the Moche River. By the fifteenth century Chan Chan had developed into one of the largest urban settlements in the pre-Hispanic Americas and the Chimú state had evolved into one of the most powerful polities in Andean prehistory.

The 1604 Anonymous History of Trujillo contains a brief account of Chimú origins (Rowe 1948: 28–30). A foreign noble named Taycanamo arrived in the Moche Valley, disembarking from a balsa log raft like those from far northern Peru and claiming to be sent by a great lord, from across the sea. For a year he remained sequestered in his house, practicing rituals and learning the local language. Gaining prestige and respect, Taycanamo was given local women for wives, became entitled Chimor Capac, and established a dynasty. His son succeeded to the throne and consolidated control over the lower Moche Valley, while Taycanamo's grandson conquered the upper Moche Valley and expanded the kingdom south to the Santa Valley and north to the Zaña Valley. Taycanamo's eighth successor, Minchançaman, led the kingdom to its apogee, conquering 200 leagues of the coastal plain as far north as Tumbes. It was Minchançaman's fate to be confronted by the Inca army, led by Topa Inca Yupanqui. The Chimú resisted, but were defeated and despoiled. Minchançaman was exiled, but his heirs—firmly under Inca control—occupied the Chimú throne until the lords of Cuzco themselves fell to Spain.

This intriguing legend of dynastic foundation and expansion has been revised and modified by over five decades of archaeological research, which has explored the complexities of statecraft, social order, worldview and religion in the Kingdom of Chimor. The Chan Chan-Moche Valley Project (1969–1974) was a pivotal investigation, as its members developed an influential model of Chimú social organization and imperial administration

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

that was derived from the study of architecture, settlement patterns, and associated artifacts from Chan Chan and other sites in the Chimú heartland of the Moche, Chicama, and Virú valleys (see, *inter alia*, Moseley and Cordy-Collins 1990; Moseley and Day 1982; Moseley and Mackey 1973, 1974). Subsequent investigations have expanded these understandings with new research at Chimú provincial centers and smaller settlements, as well as investigations into the peripheries of the kingdom of Chimor. In the following discussion we summarize patterns of imperial expansion and incorporation, first considering Chan Chan and the Chimú heartland and then examining the northern and southern expansions of the Chimú state. We then discuss Chimú worldview, religion, and social order, and conclude with a discussion of the disruptions and continuities on the north coast after the Inca conquest of Chimor.

CHAN CHAN: PATTERNS OF AN URBAN SOCIETY

The capital of Chimor, Chan Chan, dominated the Chimú heartland in every imaginable dimension. It was by far the largest Chimú site, with a maximum extent of 20 km² and a densely occupied urban core covering 6 km². It was the most populous settlement with an estimated 30,000–40,000 inhabitants, dwarfing any other known Chimú settlement in the Moche Valley or beyond (Moseley 1975; Topic and Moseley 1983; Figure 39.1). Chan Chan was the major metropole, the center to which labor and resources flowed, and this is reflected by extensive storerooms, the concentration of craft production, and the diversion of agricultural produce to the non-farming urban populace (Keatinge and Day 1973). Chan Chan's urban pattern evolved over time (Conklin 1990; Kolata 1990; Moore 1996a).

Four major classes of architecture characterize Chan Chan's built environment: 1) vast, walled royal compounds or palaces called *ciudadelas*, 2) smaller adobe walled elite compounds, 3) commoner residences (known as SIAR for "small, irregular, agglutinated rooms"), and 4) four large mounds or *huacas*.

Ten *ciudadales* dominate Chan Chan's urban landscape. They are large enclosures surrounded by adobe brick and *tapia* walls up to 9 m tall. The compounds range from 67,300 m² to 212,000 m² in area and enclose from 113 to 907 rooms and interior spaces. *Ciudadelas* were entered via a single north-facing door, and internal access was labyrinthine and restricted (Day 1973, 1982; Moseley 1975; Moore 1992, 1996a).

The *ciudadelas* were constructed at different times. There is a general consensus about the broad sequence of construction. Chayhuac, Uhle, and Tello are thought to be the earliest *ciudadelas*; Velarde, Bandelier, Tschudi and Rivero among the latest; and Squier, Laberinto and Gran Chimú erected in between (Cavallero 1991; Conrad 1982; Day 1973; Kolata 1978, 1982, 1990; Netherly 1990; Topic and Moseley 1983). The order of construction progressed from the south to north and then back to the south, as each *ciudadela*'s construction modified Chan Chan's urban pattern.

Ciudadelas incorporated spaces for the living and the dead. The *ciudadelas* probably served as palaces, each associated with a different ruler (Moseley 1982; Pillsbury and Leonard 2004). While Rowe (1995: 30) suggested that *ciudadelas* were non-residential mausoleums, the presence of kitchens in the compounds (Figure 39.1) and dense concentrations of domestic debris in the large open courtyards (*canchones*) in the rear of the compounds suggest that the *ciudadelas* were residences for Chimú kings, the royal family, and their retainers (Day 1982a: 61).

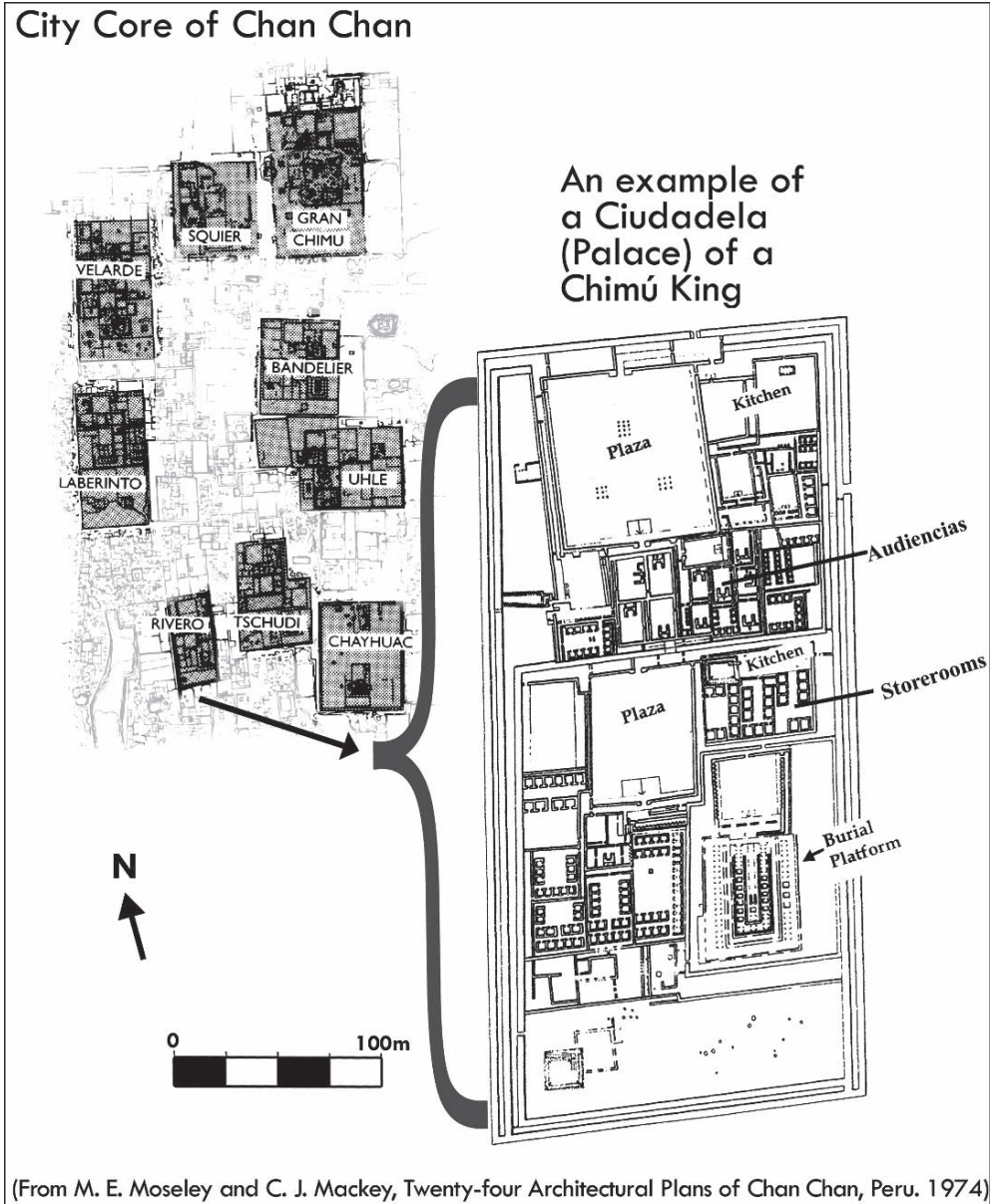


Figure 39.1. Chan Chan and expanded plan of one of its palaces, Ciudadela Rivero. (Recomposed from Moseley and Mackey 1974)

Ciudadelas enclosed extensive banks of storerooms (Klymyshyn 1987), walk-in wells, and three-sided, niched constructions called audiencias (Kolata 1990; Topic 2003). Storerooms, which consist of adjoining rooms with mud-plastered walls and floors and have step-over thresholds, were found in all the palaces (Day 1982). There is a quantitative difference in the number of storerooms in royal palaces and in the smaller

elite compounds. The *ciudadelas* averaged over 200 storerooms each (Klymyshyn 1987), whereas elite compounds at Chan Chan, as well as at regional centers and lower level administrative sites, had only a fraction of the storage found in the palaces (Mackey 1987). Audiencias were multi-functional structures that served mainly as living and working quarters for Chimú nobility and their families (Andrews 1974; Kolata 1990; J. Topic 2003). Audiencias were built at Chan Chan and administrative centers of all ranks (Mackey 1987) and were *de facto* symbols of state authority (Keatinge 1982). Plazas within the *ciudadelas* range from 2,014 to 6,724 m² and are associated with carefully constructed ramps and benches. Chan Chan's palatial plazas were settings for large-scale feasts and ritual celebrations that were part of the reciprocal system noted for other Andean societies (Mackey *in press*; Morris and Thompson 1985; Moore 1996b; Uceda 1997). In addition, Chimú architectural models with associated wooden figurines indicate that plazas were the scenes for funerals and/or ancestor veneration at the death of a king (Uceda 1997; Jackson 2004; Moore 2005). Thus, *ciudadelas* were designed to restrict access to specific areas, and also were arenas for other, specific classes of encounters between kings and subjects.

The *ciudadelas* also served as funerary compounds and seven of the ten *ciudadelas* contained burial platforms. Burial platforms are above ground, tiered mounds with internal crypts or cells constructed to hold the dead individuals and mortuary offerings (Conrad 1978, 1982:88; T. Pozorski 1979). But rather than being built exclusively as mortuary structures, the addition of burial platforms transformed *ciudadelas* from palaces into funerary complexes (Ramirez 1996: 147–148).

The Chan Chan *ciudadelas* were multi-functional foci. They visually dominated the urban landscape, warehoused the accumulations of empire, enclosed spaces of encounter, included the residence of the Chimú king, housed royalty and retainers, and with the death of a king held his tomb and anchored memory and rite.

A second category of construction is elite architecture (Klymyshyn 1982). Less elaborate than *ciudadelas* but also built from adobe bricks, Chan Chan's 35 elite compounds variously include audiencias, niched walls, ramps, benches, and storerooms. Klymyshyn (1976, 1982: 142) interpreted these architectural units as the residences of non-royalty who oversaw lower-level administrative activities.

The vast majority of Chan Chan's residents lived in *barrios* of dwellings and workshops built of cane wattle and mud daub (*quincha*) walls with cobblestone foundations. Densely occupied *barrios* spread across the city, between *ciudadelas* and elite compounds, covering a total area of approximately 1 km². SIAR tend to form simple, multi-room clusters that incorporated kitchens, patios, other living areas, and workshops for copper metallurgy, textile production, woodworking and other crafts produced for elites in Chan Chan and elsewhere in the Chimú state (J. Topic 1977, 1982, 1990).

Chan Chan's architecture and urban patterns provide insights into understanding Chimú imperial administration and social order. The variations in the size, scale, and complexity of *ciudadelas*, elite compounds, and SIAR mirror significant social inequalities. The distributions of storerooms and audiencias are associated with the acquisition and administration of resources. The correlation between burial platforms and royalty and the rarity of burial platforms—limited to Chan Chan's *ciudadelas* and two other sites located outside the Moche Valley—suggest a distinct type of funerary architecture and uniquely Chimú world view (Moore 2004). Along with other variables, these architectural patterns define different social groupings within Chan Chan, and they are the basis for a four-tiered settlement hierarchy discernible in the Chimú Empire.

THE IMPERIAL HEARTLAND: THE MOCHE, CHICAMA AND VIRU VALLEYS

By AD 1200 the Chimú had consolidated the Moche Valley and expanded north and south to incorporate the neighboring Chicama and Virú valleys (Keatinge 1974; S. Pozorski 1987). This consolidation was motivated by Chan Chan's urban population's dependence on human labor and resources from all three valleys. In the Moche Valley, two canal systems carried water to reclaim arid lands located south and north of the city (Moseley and Deeds 1982; Ortloff et al. 1982). South of Chan Chan, canals built during Moche and earlier periods were maintained and extended by the Chimú to water an area of some 37.5 km². A larger and more ambitious system north of Chan Chan originated with canals constructed during the Initial Period and Early Horizon that distributed water from the middle Moche Valley. The Chimú expanded this network dramatically by constructing the La Cumbre canal, which diverted water from the Chicama Valley and carried it more than 80 km to connect with the canal networks northeast of Chan Chan. This canal system watered plains located north (Pampa Esperanza) and west (Pampa Río Seco, Pampa Huanchaco) of Chan Chan. The northern canal networks irrigated some 163.9 km², and the pre-Hispanic extent of irrigated land in the Moche Valley totaled 201.4 km², about 30–40% more than the 128.3 km² of modern irrigated land (Moseley and Deeds 1982).

The investment in extensive irrigation system was part of a broader agrarian policy. Keatinge (1974, 1975, 1982) identified specific sites as examples of "rural sustaining communities," settlements established by the Chimú state to ensure access to agricultural products. For example, El Milagro de San José was an agrarian administrative center. Built amid prehistoric agricultural fields watered by the Moro Canal on the Pampa Río Seco, El Milagro de San José has a masonry main structure that measures 55 m × 45 m and contains courtyards, niched rooms, and five audiencias identified as a mark of state authority (Andrews 1974; Keatinge 1974). The site of Cerro de la Virgen was a different class of rural sustaining community, located among the reclaimed farmlands of the Pampa Río Seco. The settlement contained an estimated 1,000 people who combined fishing, weaving and other activities with their principal task of cultivating some 1600 ha of land. While Cerro de la Virgen's residents had access to a wide variety of plant foods (maize, common beans, chilies, avocado, squash, and a range of fruits), the farmlands were principally dedicated to cotton cultivation (S. Pozorski 1982: 193).

Approximately 15% of the rooms at Cerro de la Virgen were small storerooms, and raw cotton and spun thread were probably exported to Chan Chan (Keatinge 1975). Other settlements provided foodstuffs to the Chimú state. For example, the site of Choroval, located on the southern margin of the Moche Valley, was one of several small sites founded to maintain and cultivate extensive areas of sunken gardens where abundant quantities of maize, squash, cotton, gourd and other food plants were raised (S. Pozorski 1976: 185–194; 1982: 89–193).

IMPERIAL STRATEGIES OF EXPANSION AND INCORPORATION

There is a diverse range of Chimú-period settlements found in the coastal valleys. These settlements represent a four-tiered hierarchy (Mackey 1987) in which Chan Chan was the primary center, with second-tiered regional centers at Farfán and Túcume in the northern

empire and at Manchán on the southern frontier. Additional tertiary and quaternary centers were located in various valleys, although no single valley exhibits all four levels of the settlement hierarchy (Mackey 1987, in press).

The Chimú Empire expanded north and south during the fourteenth and fifteenth centuries (Figure 39.2), and various reconstructions of the extent and tempo of Chimú

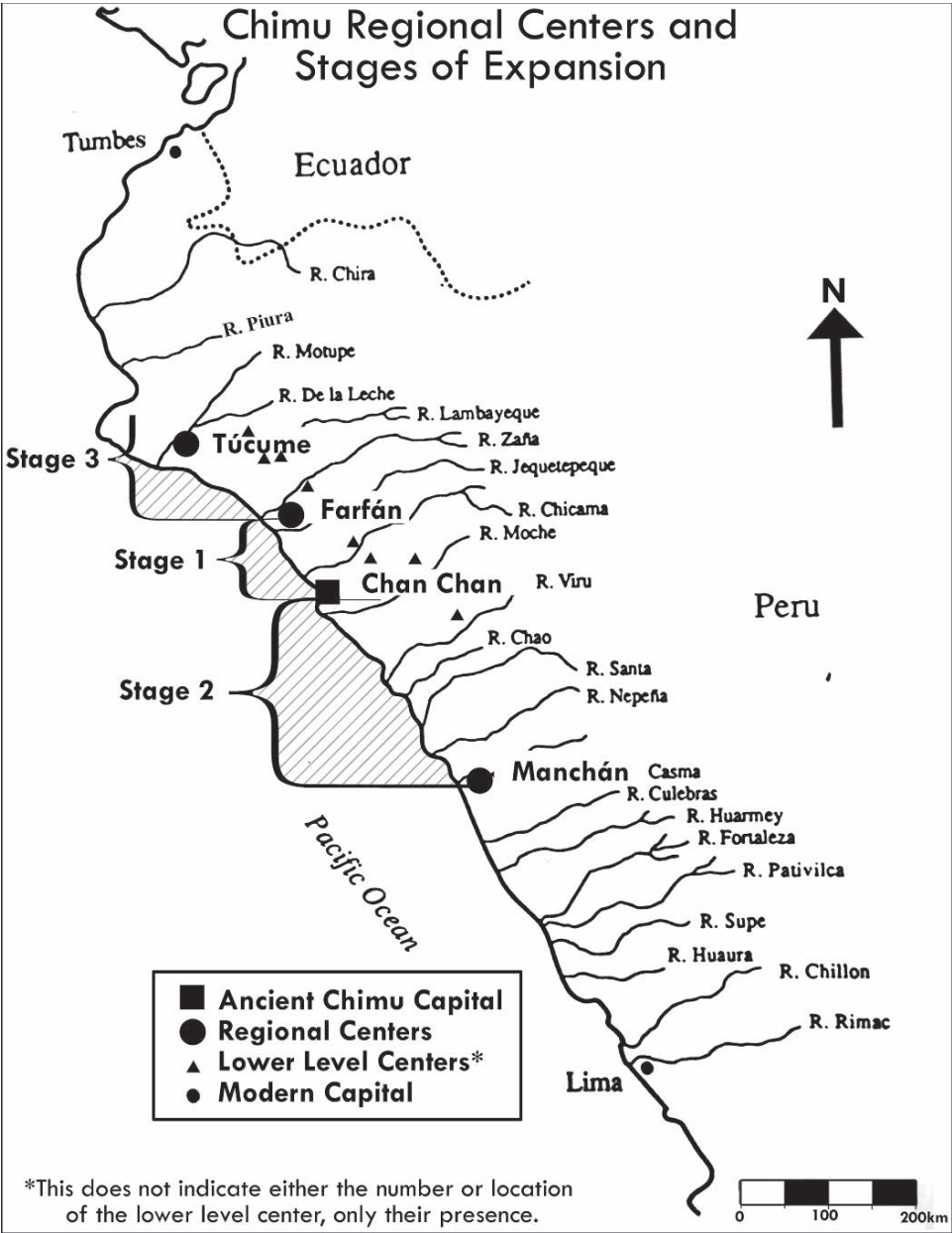


Figure 39.2. Chimu regional centers and stages of expansion. (Mackey in press)

Table 39.1. Alternative models of Chimú expansion, territorial consolidation, and influence.**Rowe 1948**

- 1) From the Moche Valley north to Jequetepeque Valley and south to Santa Valley
- 2) North from Jequetepeque to Tumbes and south from Santa to Chillon

T. Topic 1990

- 1) Consolidation of Moche heartland and interior to Middle Moche valley AD 900–1000/1050
- 2) Expansion north to Jequetepeque Valley and south to Santa Valley AD 1130–1200
- 3) North from Jequetepeque to Tumbes and south from Santa to Chillon AD 1300–1400

Mackey and Klymyshyn 1990

- 1) Expansion from the Moche Valley north to Jequetepeque Valley and south to Santa Valley
- 2) Expansion north from Jequetepeque to Tumbes
 - a) Consolidation of Zaña to Motupe
 - b) Unknown pattern of consolidation or influence between Motupe and Tumbes
- 3) Expansion south from Santa to Chillón
 - a) Consolidation of Nepeña and Casma circa AD 1305
 - b) Subsequent consolidation initiated but not completed in Culebras to Huaura valleys
 - c) No consolidation of Chillon and Rimac valleys, although influence

Proposed Model

- 1) Consolidation of Moche-Chicama-Virú heartland AD 900–1200
- 2) Expansion north to Jequetepeque Valley by AD 1320.
- 3) Expansion south to Casma Valley at ca. AD 1350
- 4) Expansion north from Jequetepeque Valley to La Leche Valley AD 1360–1400
- 5) Influence (e.g., trade or inter-elite gift exchange) to Tumbes sometime before AD 1450.
- 6) Expansion south of Casma to Chillón uncertain.

expansion have been proposed (Table 39.1). Archaeological investigations over the last two decades have revised and clarified the chronology and administrative strategies of imperial expansion, and the following represents our current interpretation. We argue for a later northward expansion into the Jequetepeque Valley than previously suggested (cf. Conrad 1990: 229; Keatinge and Conrad 1983), followed by an expansion south into the Casma Valley, and then a further northward expansion into the Lambayeque multi-valley system (Mackey in press). Beyond these areas that were directly incorporated into the Chimú Empire, populations over a vast region interacted with, but were not directly integrated into, the Chimú administrative hierarchy. The evidence for this model is discussed below.

Expansion and Incorporation North of the Heartland

In the early fourteenth century, the Chimú moved northwards into the Jequetepeque Valley, previously controlled by the Lambayeque (or Sicán) polity. A recent radiocarbon date (Mackey in press) places the arrival of the Chimú in the Jequetepeque Valley at AD 1310, later than the AD 1200 date suggested by Conrad (1990:229), although closer to Keatinge and Conrad's (1983) second radiocarbon assay of AD 1325. The Chimú violently conquered the existing Lambayeque-culture center of Farfán (Mackey and Jáuregui 2002, 2004) and established new settlements at Talambo and Algarrobal de Moro (Briceño 1996; Castillo et al. 1997; Keatinge and Conrad 1982; Mackey 2004). Chimú control of the Jequetepeque Valley was consolidated during the fourteenth century.

Farfán was strategically placed at the intersection of two major routes—the north-south coastal road and a route leading east into the Cajamarca highlands. Extending about

4 km², Chimú Farfán covered the existing Lambayeque settlement by razing the earlier structures to their fieldstone foundations and then burying them or building on top of them (Mackey in press; Figure 39.3). Of the six compounds, Compound III is the earliest and was built by the Lambayeque polity before the Chimú conquest (Conlee et al. 2004; Mackey and Jáuregui 2002). Compounds II, IV, and VI were built by the Chimú, while Compounds I and V were built during the Inca occupation of the Jequetepeque Valley (Mackey and Jáuregui 2004). The Chimú-built Compounds II and VI are the best-preserved and exhibit a number of features also found in ciudadela architecture at Chan Chan, including a main

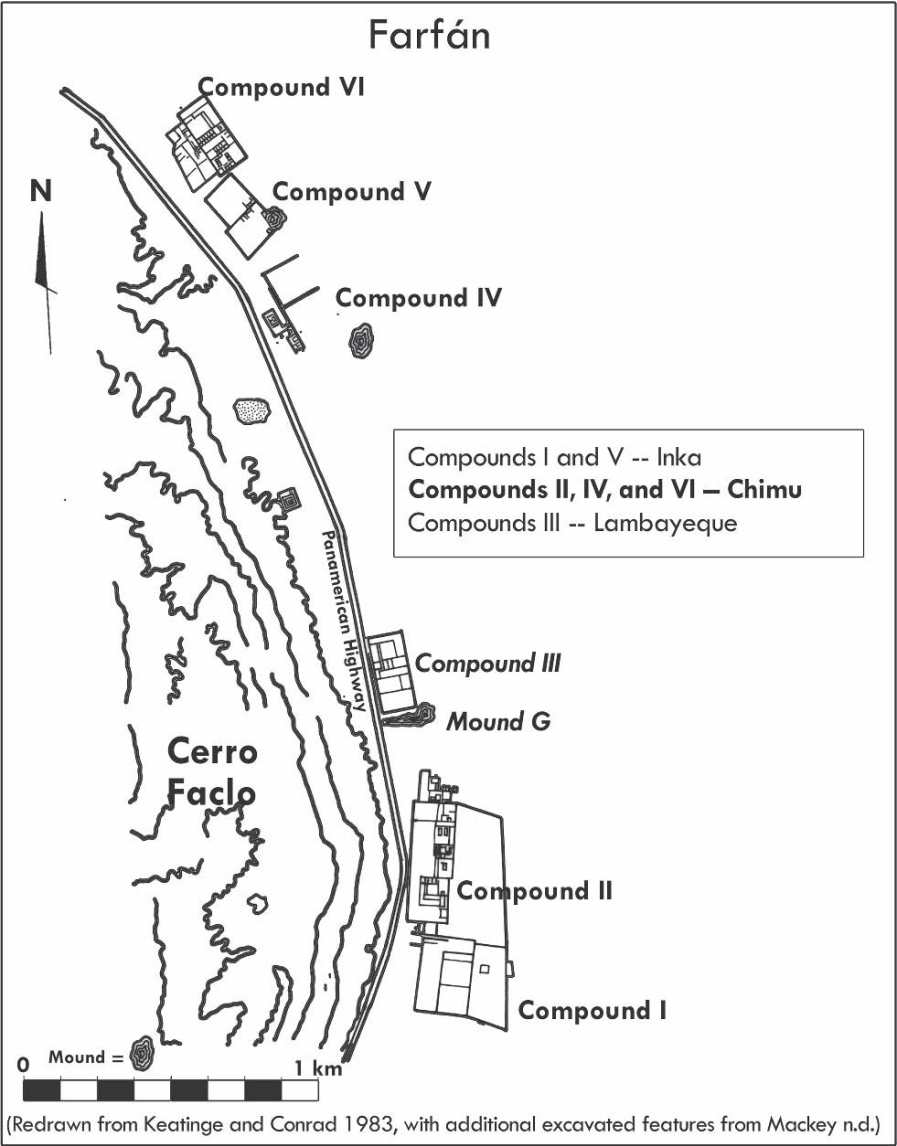


Figure 39.3. Site map of Farfán in the Jequetepeque Valley. (Redrawn from Mackey in press)

pilastered entrance, audiencias, plazas, storerooms and burial platforms (Keatinge and Conrad 1983; Conrad 1990: 228; Mackey 2004; Figure 39.4). Compound II enclosed two audiencias of unequal size, which are interpreted as possible residences of two different nobles with different responsibilities (Mackey 2006). While the smaller, Audiencia 1, controlled access to three storerooms, the larger Audiencia 2 was associated with a large patio and positioned to control access to much of the compound. Given the absence of evidence for craft production at Farfán and the modest volume of storage within Compound II, it is possible that the political activities were focused on feasting and trade alliances rather than on transshipment as suggested earlier (Mackey in press).

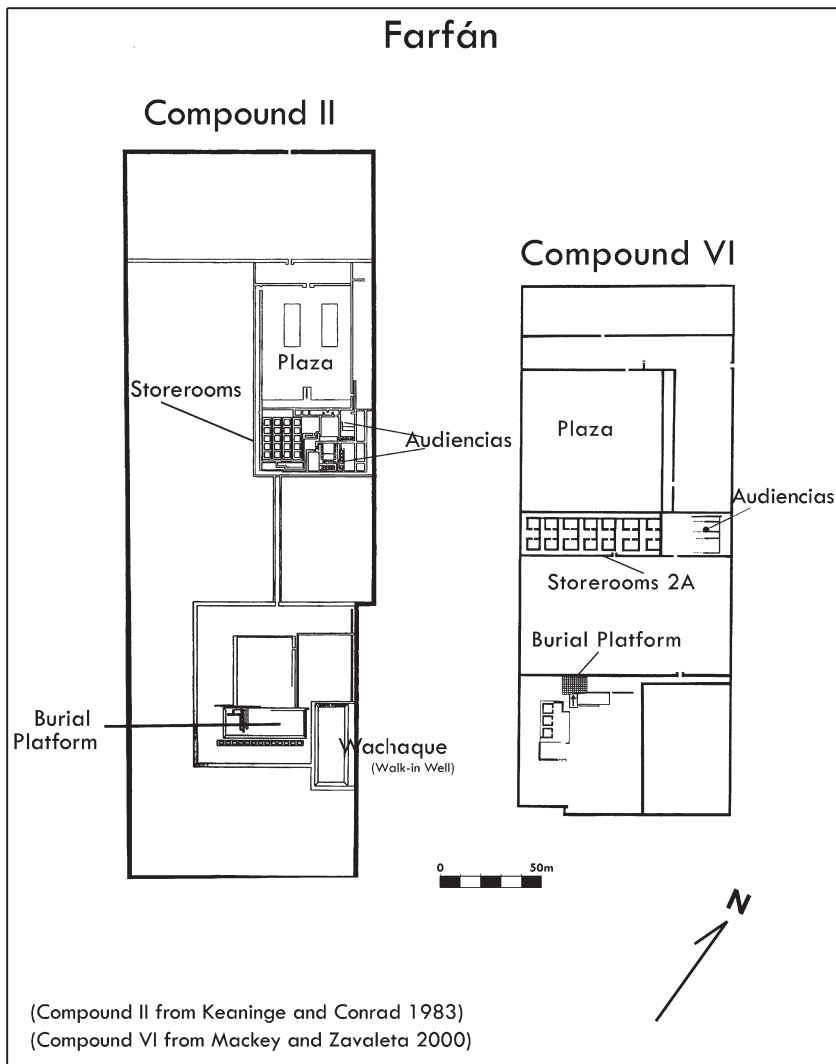


Figure 39.4. Chimú Period Compounds II and VI at Farfán. (Recomposed from Keatinge and Conrad 1983; Mackey and Zavaleta 2000)

Other Chimú centers in Jequetepeque were placed at opposite ends of the valley. To the south, La Calera de Talambo (Keatinge and Conrad 1983) overlooks the Jequetepeque River and is next to a major canal that diverted water from the river to agricultural fields. With a single audiencia but no storerooms, Talambo was probably dedicated to the administration of irrigation. At the northern end, the site of Algarrobal de Moro exhibits a complex of Chimú architectural features including a patio, audiencia, and storerooms, but the site consists of only one major Chimú compound (Mackey 2004); it was located near the Río Seco and was probably dedicated to the administration of agriculture and irrigation. A small fourth level settlement, Cabur (Sapp 2002), contained the residences of local elites who were incorporated into the lower echelons of Chimú administration.

Expansion and Incorporation South of the Heartland

The southward expansion of the Chimú state also progressed in stages and varied in strategies of consolidation. The Chimú established control over the Casma Valley, building the intrusive provincial capital of Manchan ca. AD 1350 (Figure 39.5). While the Chimú almost certainly were the major political influence in the intervening Chao, Santa, and Nepeña valleys, there is no evidence for a Chimú administrative network of settlements between Virú and Casma as previously suggested (Mackey and Klymyshyn 1990; T. Topic 1990).

Like Farfán, Manchan is located strategically near the ancient north-south coastal road and close to a major east-west route leading into the Ancash highlands (Mackey 1987; Mackey and Klymyshyn 1990). Covering 63 ha, Manchan's major architectural zone contains a series of agglutinated compounds that enclose large plazas, small storerooms, and areas interpreted as residences of local elites (Mackey 1987), while the northwestern portion of the site contains five free-standing compounds. These free-standing compounds served as elite residences and exhibit Chimú architectural features, such as audiencias, baffled entries, patios with niched walls, and ramp-bench features (Figure 39.6). Elite burials at Manchan were in separate, subterranean structures, and the individuals were interred with *Spondylus* shells, fine textiles, and Chimú ceramics. While these elite individuals were connected to the Chimú state, the absence of burial platforms indicates their non-royal status.

A barrio of some 30 commoner residences sprawls between and south of the isolated compounds and agglutinated compounds (Moore 1985). The distribution of grinding stones and hearths suggests that each household prepared its own food, but there is also clear evidence for part-time craft specialization in copper metallurgy, textile production, wood-working, and chicha brewing (Moore 1981, 1985, 1989).

Away from Manchan, Chimú settlement patterns suggest an imperial strategy different from that implemented in Jequetepeque. Based on current evidence, it seems that the Chimú did little to disrupt local political, economic, or settlement systems in the Casma Valley, but instead implemented a focused imperial strategy (Conlee et al. 2004; Mackey in press). For example, Quebrada Santa Cristina was one of the few Casma Valley sites actually constructed by the Chimú. Associated with 439 ha of raised agricultural fields, Quebrada Santa Cristina was a planned Chimú-built camp for workers constructing raised agricultural fields in the aftermath of an El Niño/Southern Oscillation event that occurred in the first half of the fourteenth century (Moore 1988, 1991). Previously, Mackey and Klymyshyn (1990) interpreted survey data as supporting a three-tiered settlement system within the Casma Valley, but additional investigations have led to revisions and corrections of that model, a process that will undoubtedly continue (Mackey in press).

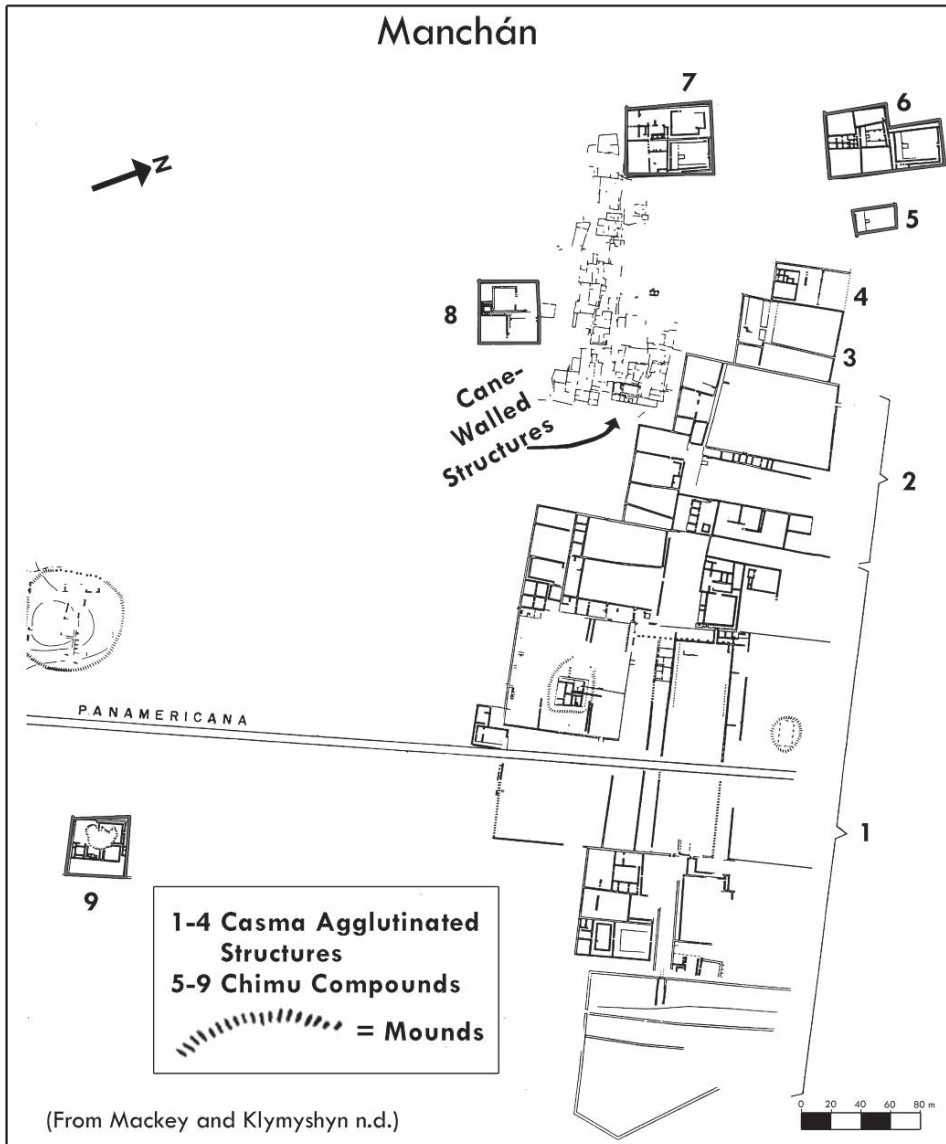


Figure 39.5. Site map of Manchán in the Casma Valley. (Mackey and Klymyshyn n.d.)

Expansion and Incorporation North of the Jequetepeque Valley

Moving further north, the Chimú occupied the La Leche Valley between AD 1360 and 1400 and appropriated the site of Túcume, incorporating its Lambayeque lords into the Chimú imperial system. Previously the seat of the Lambayeque/Sican polity (Shimada 1990), Túcume spreads over some 220 ha with a monumental sector that encircles the base and flanks of Cerro La Raya (Heyerdahl et al. 1995: 57). Túcume has one of the grandest concentrations of pyramids in Peru, with the aptly named Huaca Larga covering some

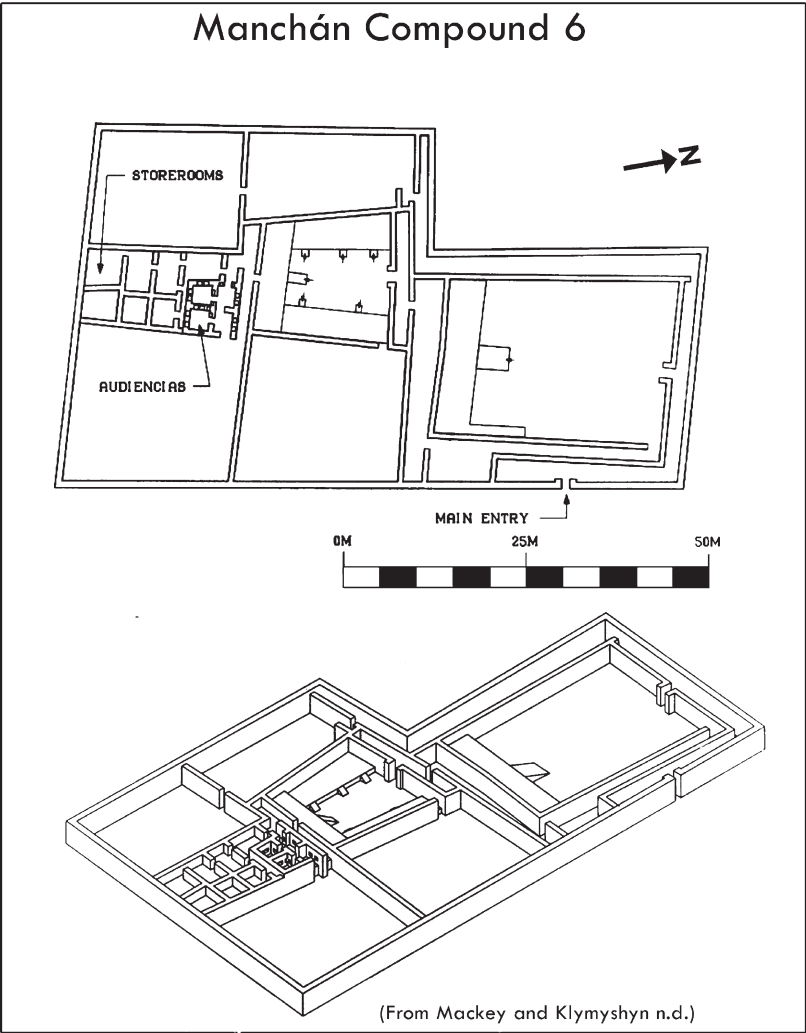


Figure 39.6. Compound 6 at Manchán. (Mackey and Klymyshyn n.d.)

700 m × 280 m (Heyerdahl et al. 1995: 79) Another 25 truncated pyramids crowd the site; all of these were built before the Chimú conquest.

The Chimú marked their arrival at Túcume by modifying at least two of the monumental structures, Huaca Larga and Huaca 1 (Figure 39.7). Huaca 1 was rebuilt by adding plazas and rooms, and although it has been stated that Huaca 1 was modified to resemble a Chimú palace, no audiencias were found (Heyerdahl et al. 1995: 90). Within Huaca Larga, the Temple of the Mythical Bird contains frieze motifs, fine ceramics and other elements that suggest it was occupied by a Chimú paramount lord (Heyerdahl et al. 1995: 84–86). In addition, the Chimú built other structures, including

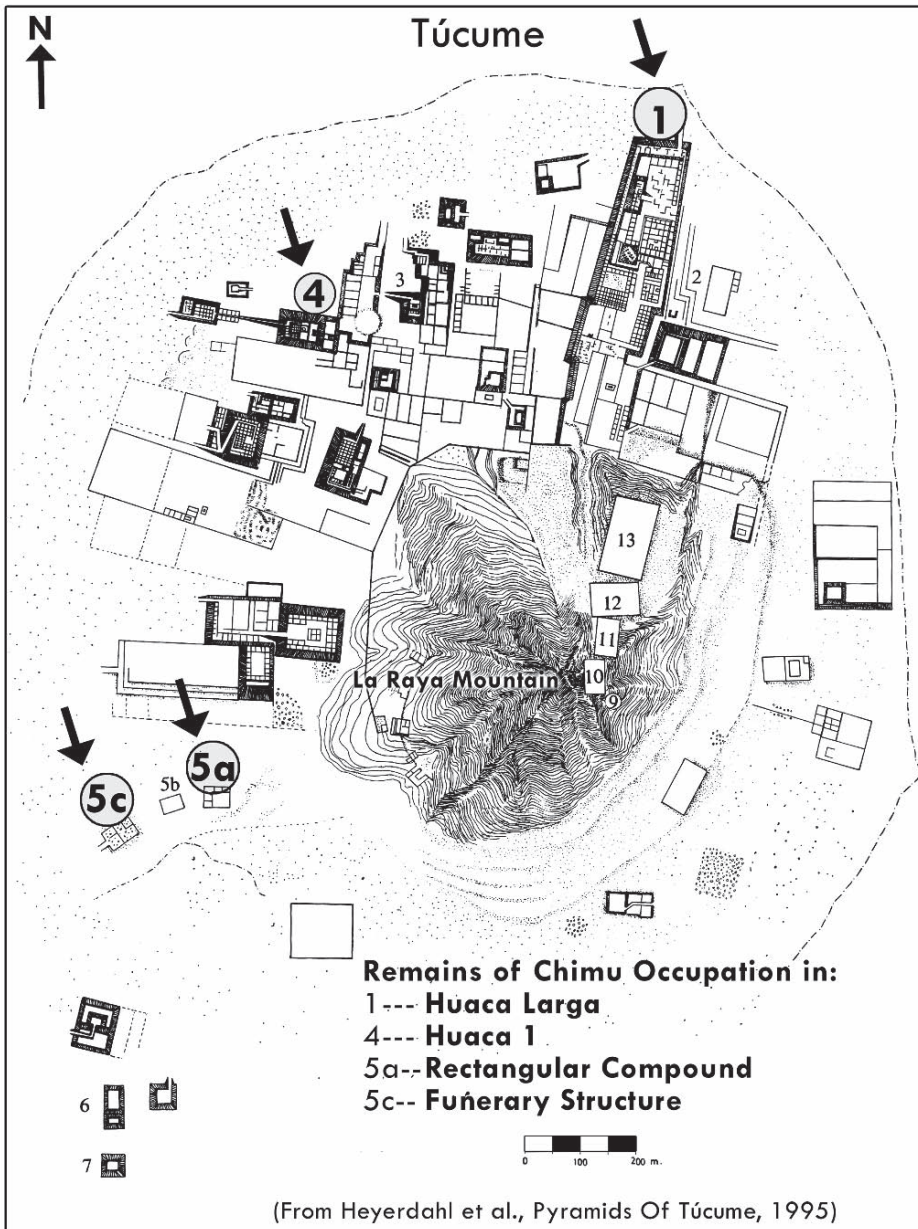


Figure 39.7. Site map of Túcume in the La Leche-Lambayeque Valley. (Heyerdahl et al. 1995)

the West Mound, an above ground funerary structure similar to Chan Chan's burial platforms although much reduced in scale (Heyerdahl et al. 1995: 149–157). The rest of Túcume's platform mounds were left largely intact and continued to be occupied by Lambayeque elites. Since both Chimú and local lords occupied Túcume, it appears that

the Chimú employed a strategy of shared control at Túcume, similar to that employed in Manchán (Mackey in press).

According to ethnohistoric sources, Túcume was the center of the northern Túcume polity, while the southern Cinto polity was controlled from Pátapo, located 35 km southeast of Túcume and on the Taymi Canal. Like Túcume, the Chimú appear to have conquered Pátapo, constructing a walled hilltop settlement that towered above the Lambayeque mounds and creating an architectural complex that was “not only defensible but also highly symbolically charged” (Tschauner 2001: 332). The Chimú complex was separated by walls 5.5 m tall, leading Tschauner to infer that the “Chimú kept local elites, who presumably continued to reside at the hill-foot mound center, under tight control” and that “all the residents of the Chimú centers were foreign Chimú administrators and their support personnel” (Tschauner 2001:333). Pátapo was one of four Chimú centers to contain audiencias, and Tschauner characterizes the “Chimú-period settlement hierarchy...[as] a composite of a local settlement system and a set of novel valley-margin centers grafted on to it.” The Lambayeque data point to a strategy of shared control, rather than a complete restructuring of local polity and economy.

INTERACTIONS WITH OTHER REGIONS

Ethnohistoric sources suggest that the Chimú Empire extended its control to far northern Peru, including Tumbes (Rowe 1948). The resources of far northern Peru and southern Ecuador were of interest to the Chimú, as indicated by the large quantities of *Spondylus* shells, beads, and other ornaments commonly found in Chimú sites (Cordy-Collins 1990; Hocquenghem 1993; Hocquenghem and Peña Ruiz 1994; Marcos 1977–78, Marcos and Norton 1984; Paulsen 1974; Pillsbury 1996). More than exotic items, *Spondylus* and *Strombus* shells were key elements in Chimú ceremonies and funerary rituals.

Current archaeological evidence indicates that Chimú influence was indirect in the Tumbes region, operating via exchange, perhaps commercial or between elites, including *Spondylus* shell and artifacts (Moore et al. 1997). Hocquenghem (1993:713) suggested that the Chimú incorporated the Tumbes region into its territory, and Theresa Topic (1990: 190) hypothesized that “the degree of political complexity in this area prior to the Chimú incursion seems to have been rather low, and new centers had to be constructed to house the Chimú victors.” Preliminary archaeological fieldwork in Tumbes by Jerry Moore does not support these suggestions. Press-molded blackware ceramics have been recovered during archaeological survey in the Tumbes and Zarumilla River Valleys (Moore et al. 1997); some of these ceramics are probably Lambayeque pottery while others certainly date to the Chimú-Inca period. For example, test excavations at the late pre-Hispanic hamlet of Loma Saavedra (Moore et al. 2005:36) recovered a press-molded, stirrup-spout blackware vessel that dates after AD 1450 and is probably Chimú-Inka. Recent excavations at Huaca de Cabeza Vaca (also referred to as Corrales or San Pedro de los Incas [Ishida et al. 1960; Richardson et al. 1990]) indicate that this was a Late Horizon center, rather than one built under Chimú domination (Vilchez 2005). While it is clear that the Chimú had some access to *Spondylus* that was transshipped and probably worked in the Tumbes region, a direct Chimú imperial presence has not been documented.

South of Casma, Chimú ceramics have been reported from Huarmey and Chillón (Collier 1962; Kosok 1965; Mackey and Klymyshyn 1990; Thompson 1966), although Dillehay reports that no Chimú ceramics were found during his survey in the Chillón

Valley (Tom Dillehay, personal communication, 1990). No Chimú provincial centers south of Casma are known, despite assertions that Paramonga was a possible Chimú fortress in the Fortaleza Valley.

WORLDVIEW AND SOCIAL ORDER

Ethnohistoric and archaeological data indicate the significance of class in reconstructing Chimú worldview and social order. For example, terms in Carrera's (1939 [1644]: 33, 69) *Arte de la Lengua Yunga* include words for cacique (*alac*), lord (*çie quic*), lady (*ciequèio*), and gentlemen (*fixllca*). Further, an often-cited north coast creation myth recorded by Antonio Calancha (1977 [1638]: 1244) presents a cosmogonic charter for class divisions:

It was said ...that these Indians of the flatlands and seacoasts were certain (and many believe it today) that their initial masses and founding fathers were not Adam and Eve, but four stars, that two gave birth to the Kings, Lords, and nobles, and the other two to the commoners, the poor, and the indentured, which—as the Faith we profess makes precise—are [actually the result of] the chances of this earth and not because it is thought that the rich and powerful are descendants of other beginnings than are the humble and poor, but they see the poor not as naturally equal but as the least valued of Fortune.

A second creation myth recorded by Calancha described the separate creations of different social classes from three eggs (Calancha 1977 [1638]: 930–935), in which royal and noble males were spawned from a golden egg, noble women from a silver egg, and all the commoners from a copper egg. These myths are ideological statements, in which multiple inequalities based on class, noble position, and gender are presented as inherent and inviolate. As Rowe (1948:47) concluded, “Evidently differences between social classes were great and immutable on the north coast.”

Archaeological data also indicate the social inequalities in Chimú society. As various scholars have noted (Conklin 1990; Rowe 1948; Moseley 1975), the towering ciudadela walls marked a social divide as well as an architectural barrier. The controlling configuration of access, the dense concentrations of storage, and the incorporation of large plazas distinguish ciudadelas from all other forms of Chimú architecture and mark the separate social existence of their inhabitants. Further, the concentration of burial platforms at Chan Chan and their rare occurrence at Farfán, Túcume, and V-124 also suggest significant social distinctions. As Conrad (1982:87) observed, “Variation in burial patterns is one of the major indications of Chan Chan’s complex social and political organization. Mortuary practices in the city range from very simple to extremely complex”. The majority of Chimú burials occurred in unmarked, individual graves, such as the vast cemetery in southern Chan Chan or the cemetery located in the southwest and southeast margins of Manchan; these graves lacked above ground crypts. The burial platforms are markedly different funerary structures (Conrad 1982: 88–101). They range from Squier’s relatively small platform measuring 27 m × 27 m and 3.5 m tall to Gran Chimú’s massive platform that is 150 m × 80 m at its base and stood over 12 m tall. These structures are tiered and truncated pyramidal mounds with internal divisions or cells entered from above. The multi-crypt mounds are usually fronted with forecourts that combine plazas, ramps, and benches.

Patterns in funerary architecture suggest differences in worldview that in part reflect class distinctions. For example, as Conrad (1982: 102–103) noted, burial platform annexes and other subsequent modifications suggest that a ruler’s death was recalled via ceremonies,

in ways different from the ways in which commoners’ deaths were remembered. In contrast to highland practices of ancestor veneration (Isbell 1997), no architectural provisions were created for the direct, physical interaction between living Chimú and their ancestors—except for burial platforms. The only evidence for “feasting” the dead comes from areas around the burial platforms. Conrad (1982: 112) hypothesized that burial platforms were maintained and elaborated by royal heirs “who resided in their ancestors’ compound and were charged with maintaining his worship”. It is also possible that the king’s cult was maintained by descendants of courtiers and vassals rather than by royal kin (Moore 2004: 118). While it is uncertain who maintained the memory of the Chimú kings, it is undeniable that the social memories of kings and commoners were distinctively maintained (Moore 2004: 116–118). Burial practice also varied among the upper echelons of Chimú society, with royalty memorialized by burial platforms and non-royal elites interred in special, subterranean structures. In turn, the distribution of burial platforms and elite funerary structures across the Chimú Empire illuminates differences in patterns of administration at regional centers like Farfán, Manchan and Túcume.

In sum, a partial model of Chimú ideology and social order emerges from analyses of myth, burials, and architecture. The Chimú were a stratified society with vast gaps in wealth, status and power between kings and commoners. The existence of non-royal elites is indicated by intermediate architecture that exhibited some of the features of the ciudadelas, but interment in burial platforms was reserved for kings. At a fundamental level, Chimú society was structured by class divisions, although other dimensions of social order—such as gender, kinship, and residence—were also important. The social distance between Chimú kings and subjects is indicated by architecture, burial treatment, and myths that reflect an ideology of separation (Moore 1996a, 2004).

CHIMU RELIGION

Specific concepts of class, hierarchy, and north coast continuity are reflected in Chimú sacred iconography. Four principal deities crowned the Chimú pantheon: the Staff God, a deity with a plumed headdress (Plumed Headdress Deity), the Chimú Goddess, and the Moon Animal (Mackey 2002) (Figure 39.8). Analysis indicates that these deities may be hierarchically organized and some may be associated more with the commoners than elites. Several of the deities show continuity with previous north coast cultures—Moche and Lambayeque. Depictions of these deities are standardized and appear on adobe friezes, in textiles, on wood, shell, metal and ceramics throughout Chimú rule (Table 39.2) into the Colonial period. This standardization reflects the control exerted by the ruling class over religious ideology and the centralization of the political economy at the capital of Chan Chan (Mackey 2002, in press).

Table 39.2. Chimú deities and associated media.

	Friezes	Keros	Ceramics	Textiles
Staff God	+	+	+	+
Plumed Headdress		+	+	+
Chimú Goddess			+	
Moon Deity		?	+	+

Representations of the Staff God—a standing, front facing deity, holding a staff in each hand—have long antiquity in Andean religious art. Unlike in earlier periods, Chimú portrayals of the Staff God tend to lack zoomorphic features. The Moche Staff God was distinctly feline with large canines, clawed hands and feet, and up-turned, comma-shaped or cat-like eyes. The Chimú Staff God is more human-like (Figure 39.8a,b), except when it is depicted on metal objects such as gold keros (drinking vessels), when the deity's eyes are often comma shaped and recall the earlier feline association (Mackey 2002). As Menzel noted (1977: 38) “the successor of the Moche Lord lost his fangs”.

Chimu Deities

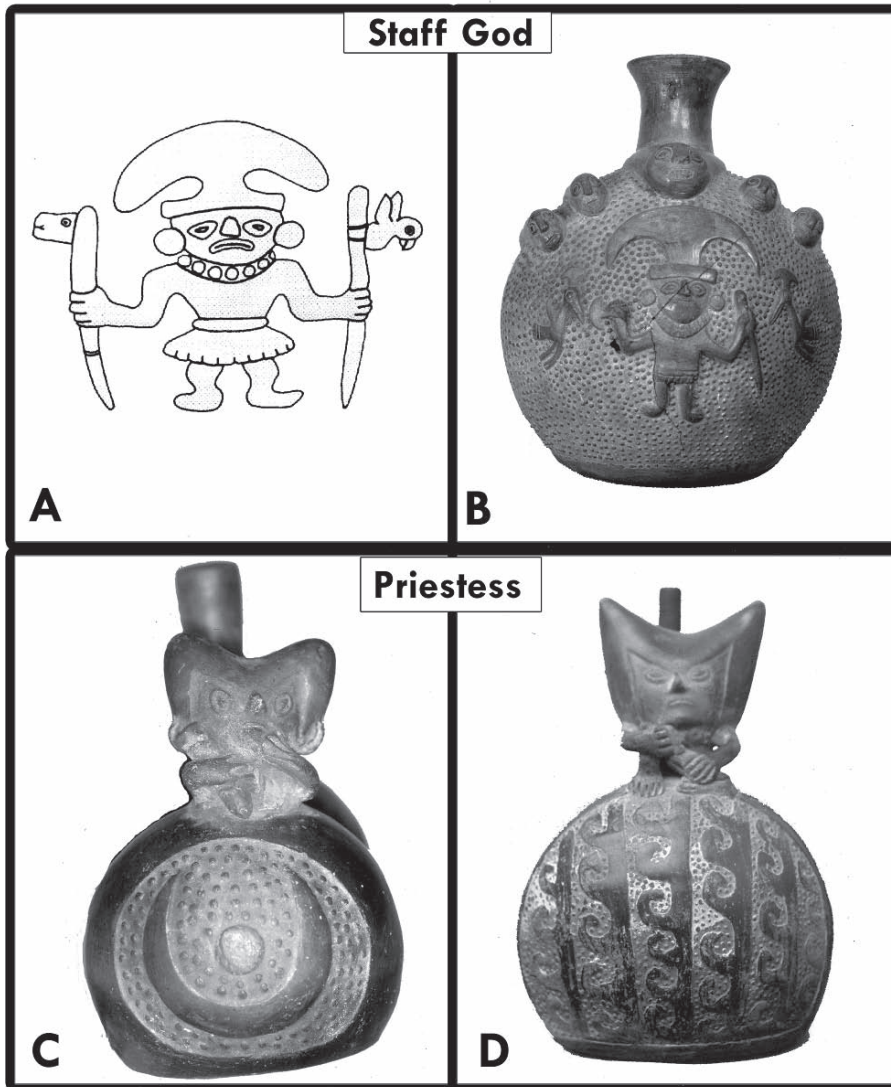


Figure 39.8. Chimú deities: Staff God and Goddess. (Carol Mackey)

The Chimú Staff God is portrayed in bas-relief on friezes, textiles, metal and ceramics, shown holding staffs or occasionally a ceremonial tumi knife (Figure 39.8b) and wearing a crescent shaped feathered headdress. He is also depicted wearing round ear ornaments, a collar or necklace, and a square or rectangular loincloth. Snakes, anthropomorphized birds and lizards are often associated with him but in secondary positions (Mackey 2002).

A second front-facing deity shares many of the Staff's God characteristics, but is distinguished by a different headdress—one with two or more plumes or tassels that fall to either side of his cap. This second deity, the Plumed Headdress Deity, may represent another facet of the Staff God, one concerned with human sacrifice. Both front-facing deities wear loincloths, but this second deity does not hold staffs. Instead, he is most frequently shown holding a lunate tumi knife in one hand and a severed head, held by the hair, in the other. Unlike the Staff God, this deity is rarely shown with other mythical beings or animals and is mainly depicted on ceramics, occurring on metal artifacts and textiles infrequently (Mackey 2002).

Chimú iconography also depicts a female deity who is associated with symbols of both the Sea and Moon (Figure 39.8c,d; Mackey 2002). This goddess is probably a continuation of the earlier Moche supernatural female associated with the sea who is shown riding in a boat in the shape of a quarter moon (Cordy-Collins 1977; McClelland 1990). The sea, according to chronicler Calancha, was an important Chimú deity called Ni. "Sacrifices of white maize flour, red ochre and other things were made to it [the sea] along with prayers for fish and protection against drowning" (Calancha 1977 [1638]). The Spanish chronicles are also quite clear that the Chimú worshipped the Moon, a deity called Si. The Chimú regarded the Moon as more powerful than the Sun because it appeared during both the night and the day (Rowe 1948).

The Chimú Goddess is the only principal deity always depicted in three dimensions (Mackey 2002) (Figure 39.8c,d). She is always shown nude and many images exhibit breasts. Her facial features are minimal and standardized, but she is often shown with comma shaped eyes indicating a feline association. Her headdress changed during her 500-year reign: in the Early Chimú phases the top of the headdress was square with two sharp corners, while in later phases the corners of the headdress become rounded and the center is bifurcated (Mackey 2002). The Goddess holds various objects including spindles with yarn and swaddled infants in cradleboards—items associated with females. The modeled image of the Chimú Goddess is always perched on the top of a spout-and-bridge vessel decorated with designs symbolizing the sea and the moon. The moon is depicted in full, half and quarter phases (Figure 39.8c). The wave motif (Figure 39.8d) is common as are sharks, stingrays, and other fish and pelicans, cormorants, and other sea birds (Mackey 2002).

The Moon Animal is one of the most enduring images in the Andes, and it is the only mythical animal to survive into the Chimú pantheon from the earlier north coast traditions (Bruhns 1976; Mackey and Vogel 2001). This mythical animal is another symbol unifying the sacred concepts of the Sea and the Moon. Like the Goddess in late Moche times, the Moon Animal is depicted riding in a crescent moon (Cordy-Collins 1990). The Chimú Moon Animal incorporates the qualities of the fox and feline; the body retains its feline arch and claws, but the face of the animal is more pointed and fox-like and has a long projecting tongue. The animal is often anthropomorphized and wears a crescent shaped head-dress like the Staff God. The Chimú also associated marine themes with the Moon Animal, and in Late Chimú renditions the animal's tail ends in a fish (Mackey 2002).

In summary, the Chimú deities appear to be connected. The Staff God appears to be more universal, however, and is shown with terrestrial associations as well as animals of the sky, while the Chimú Goddess controlled the sea and sky.

It is interesting that the deities appear on diverse media (Table 39.2), which may indicate that deities were available to or associated with different sectors of Chimú society. Depictions of the Staff God on architectural friezes inside *ciudadelas* probably were seen only by elites, while the Staff God's portrayals on keros, ceramics, and textiles might indicate a more universal distribution. Images of the Staff God, the Plumed Headdress Deity and the Moon Animal adorned fine textiles, keros and other metal objects, and perhaps were involved in exchanges among elites. The Chimú Goddess, however, appears only on ceramic vessels and figurines, and her association with the sea, sky, spinning, and child-rearing suggests availability to all classes within Chimú society (Mackey 2002).

POST-CONQUEST DISRUPTIONS AND CONTINUITIES

The north coast was fated to experience two conquests within sixty years, first by the Incas, then by the Spaniards. The Incas conquered the north coast at ca. AD 1470 (Rowe 1948). The Chimú resisted under the leadership of Chimo Capac but were defeated on the battlefield (Cabello Balboa 1951 [1586]: 317–319). Chimú administrative structure was dismantled, retaining only lower level lordships (*señorios*) under Inca rule (Ramírez 1990: 519–525), albeit with some reorganization (e.g., Netherly 1990: 465–467). A Chimú rebellion and the execution of its leader (Zarate 1944 [1555]: 46) ended organized resistance. It appears that Chan Chan was not occupied by the Incas, but instead an intrusive regional center was constructed at Chiquitoy Viejo on the road leading from Chan Chan to the Chicama Valley (Moseley 1990: 10), and the major Inca establishment was constructed in the highland Cajamarca Valley.

The Inca presence on the north coast now appears to be have been greater than previously thought (Mackey in press). At Farfan, the Incas added more storage space to the site and increased its administrative significance (Mackey 2004; Mackey and Jáurequi 2004). Portions of Manchan were remodeled by the Incas, and labor invested in new construction at Túcume was probably greater under the Incas than during the Chimú reign. The Incas made Túcume their regional center in the Lambayeque (Heyerdahl et al. 1995: 193–194), while also establishing or co-opting additional smaller administrative centers, particularly along the coastal road (Hayashida 1999; cf. Hyslop 1984: 53–54).

Elements of Chimú culture were incorporated into and in some cases sustained by Inca rule on the north coast. The production of fine textiles and ceramics continued to employ earlier techniques and motifs. Hayashida's (1995, 1999) analyses of Inca ceramics from the La Leche Valley indicate that not only utilitarian pottery but also pressmold fine ceramics were manufactured under Inca auspices, a pattern also seen in ceramic evidence from the Jequetepeque Valley (Mackey 2005). Ironically, Chimú style textiles and ceramics may have been more broadly distributed by the Incas than by the rulers of Chimor. This probably reflects the Inca strategy of rule and the continued prestige of Chimú culture, particularly for coastal elites previously incorporated into the Chimú Empire.

CONCLUSION

From AD 900 to 1470, the evolution and expansion of the Chimú state influenced the cultural trajectories of the north coast of Peru. Developing over a span of five centuries, the kingdom of Chimor was one of the most enduring New World states. Current archaeological data indicate that the Chimú were the largest north coast polity, employing a mosaic of administrative strategies. The Chimú state exerted its greatest impact, not surprisingly, on the Moche, Chicama and Virú valleys. As one of the largest cities in the pre-Hispanic Americas, Chan Chan's growth depended on the extension of irrigation and expansion of arable land. As a center for royalty and elites, Chan Chan's growth also triggered the reorganization of labor both for large-scale corvée projects and craft production (Day 1982; J. Topic 1982, 1990).

Away from the Chimú heartland, imperial strategies varied. First, territorial integration extended from the Casma Valley to the La Leche Valley, with clear evidence for settlement reorganization in the northern region previously controlled by the Lambayeque/Sicán state. Second, a variety of strategies were employed within this area of direct imperial control, ranging from the imposition of new administrative centers, the cooption of local elites, and investment in specific and focused imperial enterprises. Third, populations over an extensive area—from Motupe, north 300km to Tumbes and from Casma 350km south to Chillón—interacted with the Chimú to varying degrees through indirect rule, elite exchanges, or trade.

Archaeological investigations have identified some of the factors that contributed to Chimor's political durability. Chan Chan was the apex of a sociopolitical network whose creation and sustenance transformed the Moche-Chicama-Virú heartland, changing everything from the flow of water to the flow of goods and services between AD 900 and 1200. The Chimú then turned to conquest, expanding north to Jequetepeque by AD 1320 and south to Casma by AD 1350, and then driving further north to the La Leche Valley at the end of the fourteenth century. This region of direct political control was consolidated into the Chimú state through various means: violent conquest followed by the imposition of Chimú rule, the creation of new Chimú settlements that incorporated local nobles into the structures of statecraft, and the maintenance of lower-level and compliant communities. Beyond this region, Chimú influence was extended by less direct means, probably including inter-elite gift exchange and trade, but was regardless a major factor on the north coast until the region's conquest by the Incas.

Chimú hegemony was exerted not only by armed force and surplus extraction, but also through the ideological expropriation of north coast worldview and religion. Drawing on icons present in earlier Moche culture, the Chimú modified key elements—depicting the Staff God as more firmly rooted in the human realm and clearly associating the Chimú Goddess with the Sea, the Moon, weaving and child-rearing. Appealing to creation myths that naturalized the separate existences of lords and subjects, the Chimú justified the social divisions that characterized their kingdom.

Archaeological investigations over the last five decades have significantly advanced understanding of the kingdom of Chimor. While much remains unknown, a relatively clear model of Chimú society and statecraft has been developed, one that contributes to comparative studies of the evolution of social complexity and the nature of ancient empires in the Andes.

REFERENCES

- Andrews, Anthony, 1974, The U-shaped structures at Chan Chan, Peru. *Journal of Field Archaeology* 1: 241–264.
- Briceño Rosario, Jesús, 1996, El Algarrobal de Moro, valle de Jequetepeque: observaciones preliminares. *Revista del Museo de Arqueología, Antropología e Historia* 6: 137–159. Facultad de Ciencias Sociales, Universidad Nacional de Trujillo.

- Bruhns, Karen Olsen, 1976, The moon animal in northern Peruvian art and culture. *Ñawpa Pacha* 14: 21–39.
- Cabello Balboa, Miguel, 1951 [1586], *Miscelanea Antártica*. Universidad Nacional Mayor de San Marcos, Lima.
- Calancha, Antonio, 1977 [1638], *Cronica Moralizada* (4 vols.). Ignacio Prado Pastor, Lima.
- Carrera, Fernando de la, 1939 [1644], *Arte de la Lengua Yunga*. Universidad Nacional de Tucuman, Argentina.
- Castillo, Luis Jaime, Carol J. Mackey, Andrew Nelson, 1997, Informe Preliminar: Campaña 1996 del Proyecto Complejo Arqueológico San José de Moro. Instituto Nacional de Cultura, Lima.
- Cavallero, Rafael, 1991, *Large Site Methodology: Architectural Analysis and Dual Organization in the Andes*. Occasional Papers, No. 5. Department of Anthropology, University of Calgary, Alberta, Canada.
- Collier, Donald, 1955, *Cultural Chronology and Change as Reflected in the Ceramics of the Virú Valley, Peru*. Fieldiana, Anthropology 43. Field Museum of Natural History, Chicago.
- , 1962, Archaeological investigations in the Casma Valley, Peru. *Akten des 34 International Americanistenkongresses*, pp. 411–417. Vienna.
- Conlee, Christina A., Jalh Dulanto, Carol J. Mackey and Charles Stanish, 2004, Late pre-Hispanic sociopolitical complexity. In *Andean Archaeology*, edited by Helaine Silverman, pp. 209–236. Blackwell, Malden, MA.
- Conklin, William J., 1990, Architecture of the Chimú: memory, function, and image. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 107–144. Dumbarton Oak Research Library and Collection, Washington, D.C.
- Conrad, Geoffrey W., 1978, Royal burials of ancient Peru. *Field Museum of Natural History Bulletin* 29 (2): 6–26.
- , 1982, The burial platforms of Chan Chan: some social and political implications. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 87–117. University of New Mexico Press, Albuquerque.
- , 1990, Farfan, General Pacatnamu, and the dynastic history of Chimor. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 227–242. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1990, Fonga Sigde, shell purveyor to the Chimú kings. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 393–417. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Day, Kent C., 1973, Architecture of Ciudadela Rivero, Chan Chan, Peru. Ph.D. dissertation. Department of Anthropology, Harvard University.
- , 1982, Ciudadelas: their form and function. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 55–66. University of New Mexico Press, Albuquerque.
- Donnan, Christopher B. and Carol J. Mackey, 1978, *Ancient Burial Patterns of the Moche Valley, Peru*. University of Texas Press, Austin.
- Hayashida, Frances, 1995, State Pottery Production in the Inka Provinces. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- , 1999, Style, technology, and state production: Inka pottery manufacture in the Leche Valley, Peru. *Latin American Antiquity* 10 (4): 337–352.
- Heyerdahl, Thor, Daniel H. Sandweiss, and Alfredo Narváez, 1995, *Pyramids of Tucume: The Quest for Peru's Forgotten City*. Thames and Hudson, New York.
- Hocquenhém, Anne-Marie, 1991, Frontera entre “áreas culturales” nor y centroandino en los valles de la costa del extremo norte peruano. *Bulletin de l'Institut Français des Etudes Andines* 20: 309–348.
- , 1993, Rutas de entrada del mullu en el extremo norte del Perú. *Bulletin de l'Institut Français des Etudes Andines* 22:701–719.
- , 1994, Los españoles en los caminos del extremo norte del Perú en 1532. *Bulletin de l'Institut Français des Etudes Andines* 23:1–67.
- and Manuel Peña Ruiz, 1994, La talla de material malacológico en Tumbes. *Bulletin de l'Institut Français des Etudes Andines* 23:209–229.
- , Jaime Idrovo, Peter Kaulicke, and Dominique Gonnis, 1993, Bases del intercambio entre las sociedades norperuanas y surecuatorianas: una zona de transición entre 1500 A.C. y 600 D.C. *Bulletin de l'Institut Français des Etudes Andines* 22: 443–466.
- Hyslop, John, 1984, *The Inka Road System*. Academic Press, New York.
- Isbell, William H., 1997, *Mummies and Mortuary Monuments. A Postprocessual Prehistory of Central Andean Social Organization*. University of Texas Press, Austin.
- Jackson, Margaret, 2004, The Chimú sculptures of Huacas Tacaynamo and El Dragon, Moche Valley, Perú. *Latin American Antiquity* 15: 298–322.
- Keatinge, Richard W., 1973, Chimú Ceramics from the Moche Valley, Peru: A Computer Application to Seriation. Ph.D. dissertation. Department of Anthropology, Harvard University.

- _____, 1974, Chimú rural administrative centers in the Moche Valley, Peru. *World Archaeology* 6: 66–82.
- _____, 1975, Urban settlement systems and rural sustaining communities: an example from Chan Chan's hinterland. *Journal of Field Archaeology* 2 (3): 215–227.
- _____, 1982, The Chimú empire in a regional perspective: cultural antecedents and continuities. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 197–224. University of New Mexico Press, Albuquerque.
- _____ and Geoffrey W. Conrad, 1983, Imperialist expansion in Peruvian prehistory: Chimú administration of a conquered territory. *Journal of Field Archaeology* 10: 255–283.
- _____ and Kent C. Day, 1973, Socio-economic organization of the Moche Valley, Peru during the Chimú occupation of Chan Chan. *Journal of Anthropological Research* 29 (1): 275–295.
- _____ and Kent C. Day, 1974, Chan Chan: a study of pre-Columbian urbanism and management of land and water resources in Peru. *Archaeology* 27: 228–235.
- Klymyshyn, Alexandra M. Ulana, 1982, Elite compounds in Chan Chan. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 119–143. University of New Mexico Press, Albuquerque.
- _____, 1987, The development of Chimú administration in Chan Chan. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 97–110. Cambridge University Press, Cambridge.
- Kolata, Alan L., 1978, Chan Chan: The Form of the City in Time. Ph.D. dissertation. Department of Anthropology, Harvard University.
- _____, 1982, Chronology and settlement growth at Chan Chan. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 67–85. University of New Mexico Press, Albuquerque.
- _____, 1990, The urban concept of Chan Chan. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 107–144. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Koschmieder, Klaus, 2003, Siedlungsweise und Subsistenzstrategien an der südlichen Peripherie des Chimú-Imperiums. (Settlement Pattern and Subsistence Strategies on the Southern Frontier of the Chimú Empire). Ph.D. dissertation. Freie Universität, Berlin. Online: www.diss.fu-berlin.de/2004/86/indexe.html
- _____ and Rafael Vega-Centeno, 1996, Puerto Pobre: centro administrativo Chimú en el valle de Casma. *Revista del Museo de Arqueología, Antropología e Historia* 6:161–201. Facultad de Ciencias Sociales, Universidad Nacional de Trujillo.
- Kosok, Paul, 1965, *Life, Land and Water in Ancient Peru*. Long Island University Press, New York.
- Mackey, Carol J., 1987, Chimú administration in the provinces. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 121–129. Cambridge University Press, Cambridge.
- _____, 2002, Los dioses que perdieron los colmillos. In *Los Dioses del Antiguo Perú*. Tomo 2. Banco de Credito del Perú, Lima.
- _____, 2004, La ocupación de dos centros administrativos en el valle de Jequetepeque: El Algarrobal de Moro y el Complejo VI de Farfan. In *SIAN*, edited by Luis Valle, pp. 75–88. Trujillo.
- _____, 2006, Elite residences at Farfán: a comparison of the Chimú and Inka occupations. In *Palaces and Power in the Americas: From Peru to the Northwest Coast*, edited by Jessica J. Christie and Patricia J. Sarro, pp. 312–352. University of Texas Press, Austin.
- _____, in press, In *Chimú Statecraft in the Provinces: Papers in Honor of Michael E. Moseley*, edited by Joyce Marcus, Charles Stanish, and Patrick Ryan Williams. Cotsen Institute of Archaeology, University of California, Los Angeles.
- _____ and César Jáuregui, 2002, Proyecto Arqueológico de Farfán. Informe Preliminar. Instituto Nacional de Cultura, Lima.
- _____ and César Jáuregui, 2004, Proyecto Arqueológico de Farfán. Informe Preliminar. Instituto Nacional de Cultura, Lima.
- _____ and Alexandra M. Ulana Klymyshyn, 1981, Construction and labor organization in the Chimú Empire. *Ñawpa Pacha* 19: 99–114.
- _____ and Alexandra M. Ulana Klymyshyn, 1990, The southern frontier of the Chimú Empire. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 195–226. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- _____ and Melissa Vogel, 2001, La luna sobre los Andes: una revision del Animal Lunar. In *Actas del Segundo Coloquio de Arqueologia sobre la Cultura Moche*, edited by Santiago Uceda and Elias Mujica, pp. 325–342. Trujillo.
- Marcos, Jorge G., 1977–78, Cruising to Acapulco and back with the Thorny Oyster set: a model for lineal exchange systems. *Journal of the Steward Anthropological Society* 9: 99–132.
- _____ and Presley Norton, 1984, From the Yungas of Chinchay Suyu to Cusco: the role of La Plata island in *Spondylus* trade. In *Social and Economic Organization in the Pre-Hispanic Andes*, edited by David L. Browman, Richard L. Burger and Mario A. Rivera, pp. 7–20. BAR International Series, 194. Oxford.
- McClelland, Donna, 1990, A maritime passage from Moche to Chimú. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 76–106. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Menzel, Dorothy, 1977, *The Archaeology of Ancient Peru and the Work of Max Uhle*. R. H. Lowie Museum of Anthropology, University of California, Berkeley.
- Moore, Jerry D., 1981, Chimú socio-economic organization: preliminary data from Manchán, Casma Valley, Peru. *Nawpa Pacha* 19: 115–128.
- _____, 1985, Household Economics and Political Integration: The Lower Class of the Chimú Empire. Ph.D. dissertation. Department of Anthropology, University of California, Santa Barbara.
- _____, 1988, Pre-Hispanic raised field agriculture in the Casma Valley: recent data, new hypotheses. *Journal of Field Archaeology* 15: 265–276.
- _____, 1989, Pre-Hispanic beer in coastal Peru: technology and social context of prehistoric production. *American Anthropologist* 91: 682–695.
- _____, 1991, Cultural responses to environmental catastrophes: post-El Niño subsistence on the prehistoric north coast of Peru. *Latin American Antiquity* 2: 27–47.
- _____, 1992, Pattern and meaning in prehistoric Peruvian architecture: the architecture of social control in the Chimú state. *Latin American Antiquity* 3 (2): 95–113.
- _____, 1996a, *Architecture and Power in the Ancient Andes*. Cambridge University Press, Cambridge.
- _____, 1996b, The archaeology of plazas and the proxemics of ritual: three Andean traditions. *American Anthropologist* 98 (4): 789–802.
- _____, 2003, Life behind walls: patterns in the urban landscape on the prehistoric north coast of Peru. In *The Social Construction of Ancient Cities*, edited by Monica L. Smith, pp. 81–102. Smithsonian Institution Press, Washington, D.C.
- _____, 2004, The social basis of sacred spaces in the pre-Hispanic Andes: ritual landscapes of the dead in Chimú and Inca societies. *Journal of Archaeological Method and Theory* 11 (1): 83–124.
- _____, 2005, *Cultural Landscapes in the Pre-Hispanic Andes: Archaeologies of Place*. University Press of Florida, Gainesville.
- _____, Bernardino Olaya Olaya, and A. Wilson Puell Mendoza, 1997, Investigaciones del Imperio Chimú en el valle de Tumbes, Perú. *Revista del Museo de Arqueología, Antropología e Historia* 7: 173–184. Universidad Nacional de Trujillo, Perú.
- _____, Maria Carolina Vilchez, Bernardino Olaya Olaya, Eva Pajuelo, and Andrew Bryan, 2005, Proyecto Arqueológico Tumbes: Excavaciones en Loma Saavedra, Departamento de Tumbes, Perú, Temporada 2003. Informe Final submitted to the Instituto Nacional de Cultura, Lima.
- Moseley, Michael E., 1975, Chan Chan: Andean alternative of the pre-industrial city? *Science* 187: 219–225.
- _____, 1982, Introduction: human exploitation and organization on the north Andean coast. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 1–24. University of New Mexico Press, Albuquerque.
- _____, 1990, Structure and history in the dynastic lore of Chimor. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 1–41. Dumbarton Oaks Research Library and Collection, Washington D.C.
- _____, 1992, *The Incas and Their Ancestors*. Thames and Hudson, New York.
- _____ and Alana Cordy-Collins (eds.), 1990, *The Northern Dynasties: Kingship and Statecraft in Chimor*. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____ and Kent C. Day (eds.), 1982, *Chan Chan: Andean Desert City*. University of New Mexico Press, Albuquerque.
- _____ and Eric Deeds, 1982, The land in front of Chan Chan: agrarian expansion, reform, and collapse in the Moche Valley. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 25–53. University of New Mexico Press, Albuquerque.

- _____ and Carol J. Mackey, 1973, Chan Chan. Peru's ancient city of kings. *National Geographic* 143: 318–345.
- _____ and Carol J. Mackey, 1974, *Twenty-Four Architectural Plans of Chan Chan, Peru*. Peabody Museum Press, Cambridge, MA.
- Morris, Craig and Donald E. Thompson, 1985, *Huanuco Pampa: An Inca City and Its Hinterland*. Thames and Hudson, New York
- Narváez Vargas, Alfredo, 1989, Chan Chan: chronology and stratigraphic contexts. *Andean Past* 2: 131–174.
- Netherly, Patricia, 1977, Local Level Lords on the North Coast of Peru. Ph.D. dissertation. Department of Anthropology, Cornell University, Ithaca, New York.
- _____, 1990, Out of many, one: the organization of rule in the north coast polities. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 461–487. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Ortloff, Charles R., Michael E. Moseley, and Robert A. Feldman, 1982, Hydraulic engineering aspects of the Chimú Chicama-Moche intervalley canal. *American Antiquity* 47 (3): 572–595.
- Paulsen, Allison C., 1974, The Thorny Oyster and the Voice of God: *Spondylus* and *Stombus* in Andean prehistory. *American Antiquity* 39: 597–607.
- Pillsbury, Joanne, 1993, Sculptural Friezes of Chimor. Ph.D. dissertation. Department of Art, Columbia University, New York.
- _____, 1996, The Thorny Oyster and the origins of empire: implications of recently uncovered *Spondylus* imagery from Chan Chan, Peru. *Latin American Antiquity* 7: 313–340.
- _____ and Banks Leonard, 2004, Identifying Chimú palaces: elite residential architecture in the Late Intermediate Period. In *Palaces of the Ancient New World*, edited by Susan Toby Evans and Joanne Pillsbury, pp. 247–298. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Pozorski, Shelia, 1976, Prehistoric Subsistence Patterns and Site Economics in the Moche Valley, Peru. Ph.D. dissertation. Department of Anthropology, University of Texas, Austin.
- _____, 1979, Prehistoric diet and subsistence of the Moche Valley, Peru. *World Archaeology* 11: 163–184.
- _____, 1982, Subsistence systems in the Chimú state. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 177–196. University of New Mexico Press, Albuquerque.
- Pozorski, Thomas, 1979, The Las Avispas burial platform at Chan Chan, Peru. *Annals of the Carnegie Museum* 48: 119–137.
- _____, 1987, Changing priorities within the Chimú state: the role of irrigation agriculture. In *The Origins and Development of the Andean State*, edited by Jonathan Haas, Shelia Pozorski, and Thomas Pozorski, pp. 111–120. Cambridge University Press, Cambridge.
- Ramirez, Susan E., 1990, The Inca conquest of the north coast of Peru: a historian's view. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 507–537. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- _____, 1996, *The World Upside Down: Cross-Cultural Contact and Conflict in 16th-Century Peru*. Stanford University Press, Stanford.
- Richardson III, James B., Mark McConaughy, Allison Heaps de Peña and Elenca Décima Zamecnik, 1990, The northern frontier of the kingdom of Chimor: the Piura, Chira and Tumbes valleys. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 419–445. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Rostworowski de Diez Canseco, Maria, 1990, Ethnohistorical considerations about the Chimor. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 447–460. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Rowe, Ann P., 1984, *Costume and Featherwork of the Lords of Chimor: Textiles from Peru's North Coast*. The Textile Museum, Washington, DC.
- Rowe, John H., 1948, The kingdom of Chimor. *Acta Americana* 6:26–59.
- _____, 1995, Behavior and belief in ancient Peruvian mortuary practice. In *Tombs for the Living: Andean Mortuary Practices*, edited by Tom D. Dillehay, pp. 27–41. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Sapp, William, 2002, The Impact of Imperial Conquest at the Palace of a Local Lord in the Jequetepeque Valley, Northern Peru. Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles.
- Shimada, Izumi, 1990, Cultural continuities and discontinuities on the northern coast of Peru, Middle-Late Horizons. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 297–392. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- Thompson, Donald E., 1966, Archaeological investigations in the Huarmey Valley, Peru. *26th Congreso Internacional de Americanistas, Madrid, 1964*, Tomo I, pp. 541–548.
- Topic, John R., 1977, *The Lower Class at Chan Chan: A Qualitative Approach*. Ph.D dissertation. Department of Anthropology, Harvard University.
- , 1982, Lower-class social and economic organization at Chan Chan. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 145–175. University of New Mexico Press, Albuquerque.
- , 1990, Craft production in the kingdom of Chimor. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 145–176. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 2003, From stewards to bureaucrats: architecture and information flow at Chan Chan, Peru. *Latin American Antiquity* 14 (3): 243–274.
- and Michael Moseley E., 1983, Chan Chan: a case study of urban change in Peru. *Ñawpa Pacha* 21: 53–182.
- Topic, Theresa L., 1990, Territorial expansion and the kingdom of Chimor. In *The Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 177–194. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Tschauner, Hartmut, 2001, *Socioeconomic and Political Organization in the Late Pre-Hispanic Lambayeque Sphere, Northern North Coast of Peru*. Ph.D. dissertation. Department of Anthropology, Harvard University.
- Uceda, Santiago, 1997, Esculturas en miniatura y una maqueta en madera. In *Investigaciones en la Huaca de la Luna 1995*, edited by Santiago Uceda, Elias Mujica and Ricardo Morales, pp. 151–176. Universidad Nacional de La Libertad, Trujillo.
- Vilchez Carrasco, Carolina, 2005, Informe: Proyecto Puesta en Valor del Monumento Arqueológico de Cabeza de Vaca—Tumbes, Temporada 2004. Instituto Nacional de Cultura, Tumbes.
- Zarate, Augustin, 1944 [1555], *Historia del Descubrimiento y Conquista del Perú*. Imprenta Miranda, Lima.

The Inca Empire

R. ALAN COVEY

INTRODUCTION

The Inca Empire (Figure 40.1) was the last native state to develop in South America before sixteenth century European invasions introduced foreign culture, religion, and disease. Building on principles common to a millennium-long tradition of Andean statecraft, the Incas innovated and modified their imperial strategies and practices to dominate a larger and more ecologically diverse territory—and to administer a more numerous and cosmopolitan population—than any earlier Andean civilizations. This chapter presents a brief, archaeologically driven account of the rise and expansion of the Inca Empire, focusing on the material record to describe certain essential characteristics of the Inca imperial order (for more comprehensive syntheses see, e.g., D’Altroy 2002; Stanish 2001; and the classic statement by Rowe 1946). In focusing on Inca archaeology this paper cannot do justice to the major contributions made by anthropologists and ethnohistorians to Inca studies (see, e.g., Murra 1980 [1955]; Zuidema 1964; Rostworowski 1999; Pease 1991; Urton 1990—to name only a few).

TELLING THE INCA STORY ARCHAEOLOGICALLY

For its first 350 years, the field of Inca studies relied almost exclusively on documents produced by Spanish and Andean authors in the first century following the Conquest. Nearly a century ago the German archaeologist Max Uhle advocated the collection of archaeological data to explore known inaccuracies in the documentary record, and to clarify the relationship between the Inca Empire and earlier Andean civilizations (Uhle 1912), but such a project has yet to be fully realized, despite great advances in Inca archaeology and historiography. Detailed descriptions of life in and around the Inca capital of Cuzco just before the Spanish invasion have often made the collection of archaeological data seem counterintuitive, and such data too often have been subordinated to Colonial documents that are fragmentary, biased, and frequently not germane to the study of non-elite or provincial contexts.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008



Figure 40.1. Territory of Tawantinsuyu (the Inca empire), showing the Inca highway and its infrastructural architecture.

Fortunately, Inca archaeology has begun to grow into its full potential in the past century and is now in a position to stand independently from the documentary record. Moreover, decades of excavation and survey throughout the Andean region have improved our understanding of life outside of the imperial heartland, while recent projects within

the Inca heartland itself have gathered sufficient evidence for the story of the Incas to be recounted in the same way as the other Andean civilizations discussed in this volume—working forward in time using archaeological data, rather than projecting backward into the mists of Inca mythohistory using Colonial documents.

Inca Origin Myths and the Archaeological Evidence

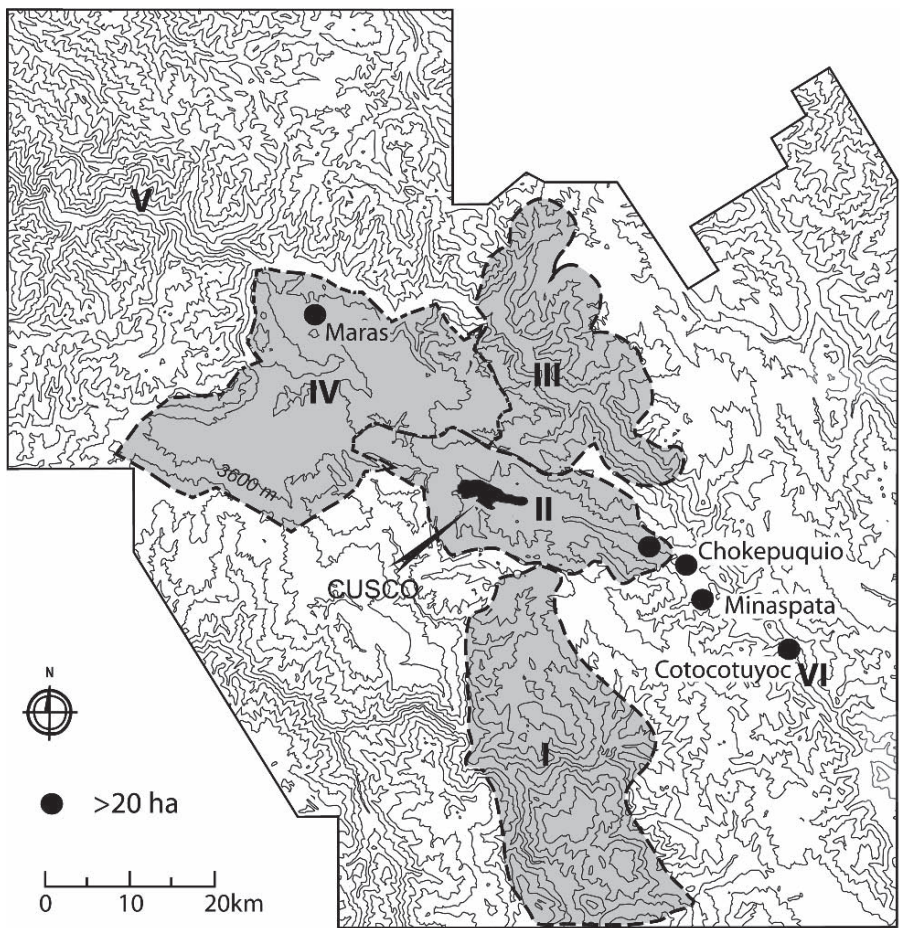
In one version of their origin myth, the Incas present their ancestors first appearing at Lake Titicaca. There is reason to suspect that the Titicaca origin myth was adopted in imperial times or later to accommodate the sacred status of the lake, just as the patronage of Pachacamac acknowledged the pilgrimage systems and origin myth of the central coast (see Salomon and Urioste 1992: 111). Inca informants from the mid-sixteenth century onward recounted origin myths reflecting a self-identification as quechua (temperate intermontane valley: see Chapter 6 in this volume) agriculturalists. In this, the Incas celebrated the emergence of the first pairs of male and female ancestors from a cave located about a day's walk to the south of Cuzco. Bearing maize and their royal emblems, the ancestors journeyed northward, settling in the best lands of the Cuzco basin. On this mythical journey, they subjugated groups that lived in higher elevations and farmed suni lands (dry-farmed valley-side lands where tubers, quinoa, and tarwi thrive: see Chapter 6 in this volume), as well as people living in the warm lowlands where chile pepper could be grown. In their origin myths, collected in the Colonial Period, the Incas named groups whom they had conquered, as well as those whose rulers were contemporaries of Manco Capac, the founding Inca ruler.

Many aspects of the Inca origin myths are not substantiated archaeologically, such as the migration from another location. Nevertheless, archaeological surveys in the Cuzco region (Figure 40.2) appear to validate the identification of the Incas as valley-bottom maize farmers. The earliest villages in the region were established by the early first millennium BC, generally in locations suitable for extensive polycropping. Around AD 400, the region experienced an almost universal settlement disruption as populations shifted to lower elevations and closer to small streams that could easily be used for irrigation. In the Cuzco basin, the majority of the population would continue to live in undefended settlements close to the valley bottom. Later, Inca state formation involved the annexation of new lands to develop intensive maize agriculture.

In the Late Intermediate Period, from ca. AD 1000–1400 the principal sites of the Ayarmaca, Pinagua, and Mohina groups were dense settlement clusters of at least 20 ha, located 25 km or so from the growing city of Cuzco (Figure 40.3). Several indigenous chroniclers identify the leaders of these groups—Tocay Capac of the Ayarmaca, and the eponymous Pinagua Capac—as Manco Capac's contemporaries, perhaps because these complex maize farming groups were important rivals during the process of Inca state formation, territorial expansion, and administrative consolidation of the Cuzco region. Archaeologically, the groups identified as having powerful leaders (i.e., leaders who used the title of *qhapaq/capac*) during the mythical times of the first Inca ruler lived in undefended, nucleated valley-bottom settlements in close proximity to areas where maize could be grown intensively.

INCA STATE FORMATION AND TERRITORIAL EXPANSION

Origin myths tell us how the Inca elite thought of itself—as children of the Sun, divinely selected and justified in their domination of the Cuzco region—but they do not provide useful information on how an imperial elite emerged from a society that until AD 1000 or so

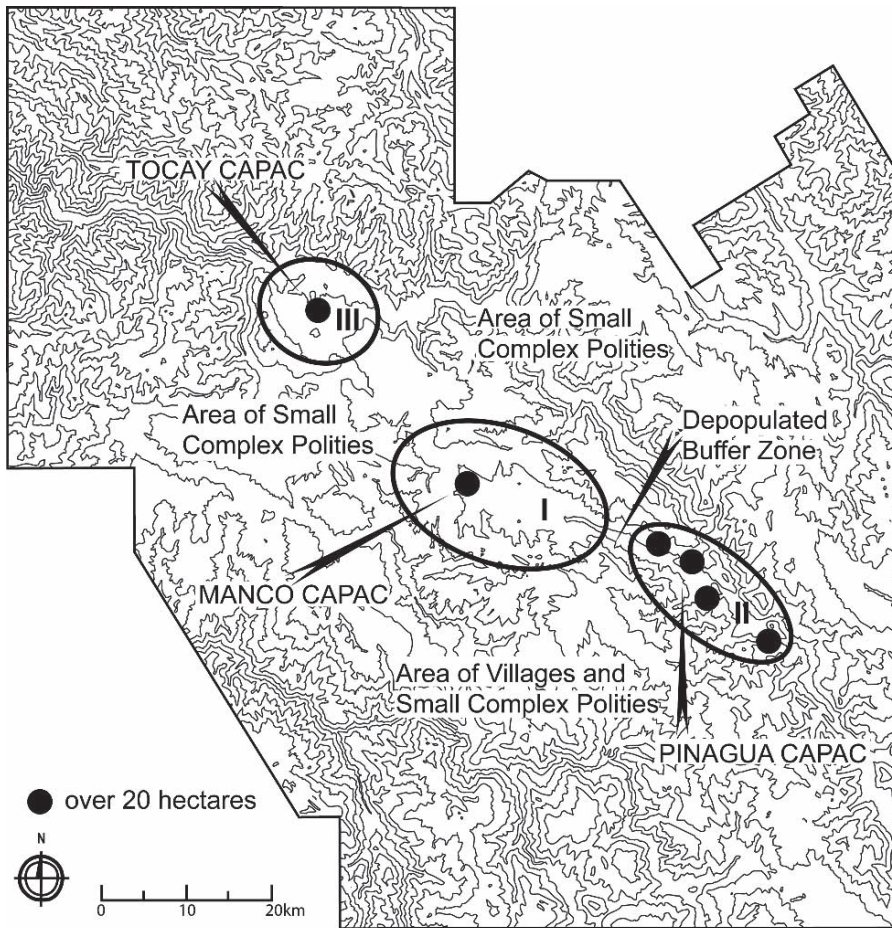


- I. Paruro Archaeological Project
- II. Cusco Valley Archaeological Project
- III. Sacred Valley Archaeological Project
- IV. Xaquixaguana Plain Archaeological Survey
- V. Cusichaca Study Region
- VI. Huaro Study Region

Figure 40.2. Cuzco area surveys, with large pre-Inca sites shown. (Alan Covey)

was only a moderately complex group of maize farmers. The Andean chroniclers Garcilaso de la Vega, Guaman Poma de Ayala, and Pachacuti Yamqui Salcamaygua credit Manco Capac with establishing administrative control over the region that would eventually be the Inca imperial heartland, extending Inca ethnic status to its inhabitants. Contemporary scholars have tended to discount the historical reliability of such accounts. Instead, they have adopted another story of Inca imperial origins that is equally dependent on the actions of a single charismatic individual.

In the regnant historicist reconstruction of Inca imperial origins, a prince named Inca Yupanqui defended Cuzco (with divine aid) against a foreign invasion (the Chancas



- I. Territory of the Cusco Basin polity. Many villages to the south of the Cusco Basin (within 15–20 km of Cusco) are thought to have been dominated by this polity.
- II. Area of large primate centers. These probably constitute multiple polities, each with a principal town and small territory.
- III. Location of the Ayarmaca polity. The principal settlement is surrounded by approximately 100 hectares of smaller villages and hamlets.

Figure 40.3. Schematic of group interaction in the Late Intermediate Period (ca. AD 1000–1400), with large valley-bottom sites shown. (Alan Covey)

of Andahuaylas), and then personally established the Inca imperial order. So profound and sudden was the transformation of Inca society—from a simple village of maize farmers into one of the world’s great empires—that Inca Yupanqui took the name Pachacutic (Pachakutiq, Pachacutec among other spellings), meaning “The One Who Ushers in a New Universal Cycle”. The Pachacutic story provides a vivid account of imperial origins, but it is not substantiated by a growing body of archaeological evidence, which now permits

researchers to move beyond a “Great Man” reconstruction of Inca imperial origins toward an interpretive focus on long-term changes in the interactions between the Incas and the many neighboring groups living around the Cuzco basin (e.g., Bauer and Covey 2002) (Figure 40.3).

Regional settlement pattern data indicate a wide range of variability in social organization in the Cuzco area following AD 900–1000, when Wari colonial sites in the Huaro area and Lucre basin (25–40 km to the southeast of Cuzco) were abandoned and burned. The areas most directly influenced by the Wari state presence appear to have maintained an intensive maize economy, but the lack of centralized integration of the area during the Late Intermediate Period is evidenced by the presence of several large nucleated settlements—for example, Chokepuquio, Minaspata, and Cotocutuyoc—without evidence of a higher-order center. Research by Gordon McEwan and colleagues has revealed a high degree of local political complexity at the principal sites in this area, probably predicated on certain continuities in Wari patterns of elite authority, political economy, and ideology (McEwan et al. 2002).

Archaeological survey has recently identified another complex settlement system, to the northwest of Cuzco in the Maras area, which is associated with the Ayarmaca group in the more geographically detailed Spanish chronicles (see Covey et al. 2006). The largest Late Intermediate Period site is more than 20 ha and is surrounded by about 100 ha of village-level sites and hamlets. The Maras settlement system is hierarchical and distributed around quebradas where substantial tracts of terraced and irrigated maize lands are present, as well as in close proximity to salt pans that are known to have been worked in Inca times (and perhaps earlier).

Areas to the north, south, and west of Cuzco exhibit much more modest levels of local complexity during the period of Inca state formation. The Paruro region to the south of Cuzco had sparse settlement, with small villages and hamlets located in mid-elevation ranges in settlement patterns that changed little between AD 900 and the sixteenth century (Bauer 1992). To the north of Cuzco, the so-called Sacred Valley (Urubamba–Vilcanota) was settled by groups of intermediate complexity, with larger settlements located on high elevation ridges and mountain tops in areas providing good visibility, limited accessibility, and proximity to a broad range of resources for maintaining a diversity-rich agropastoral economy (see Covey 2006).

While most of the surrounding region experienced major disruptions to local settlement patterns—which signal a degree of change to social and economic organization—the Cuzco basin proper did not undergo substantial site abandonment as Wari influence waned. Brian Bauer’s research in the Cuzco basin indicates overall continuity in site occupation, characterized by large, undefended villages on low bluffs just above valley-bottom farmland. Cuzco emerged as an urban settlement sometime between AD 1000 and 1400, although it is difficult to determine the precise chronology of the urbanization process. The regional survey data have been interpreted as consistent with the formation of a centralized state by the thirteenth century (see Bauer and Covey 2002; cf. Hiltunen and McEwan 2004).

The Inca state extended its influence and administrative control throughout the Cuzco region over the century or so leading up to the initiation of imperial expansion campaigns around AD 1400. The archaeological and historical evidence suggests that this process involved alliance-building, intimidation, and warfare, and that the Inca elite pursued strategies that depended on local political organization, ethnic identity, and ecology. The most powerful rivals of the expanding state came under Inca hegemony, but the Spanish chronicles describe a final phase of military conquest and administrative

consolidation occurring after other Cuzco region groups had been brought under Inca administration.

Additional excavation work and artifact analysis are needed to determine the micro-chronology of Inca expansion within the Cuzco region, but surface collections indicate that some sub-regions were incorporated later into the Inca polity, while others existed for some time under Inca dominance before valley-bottom imperial installations and royal estates replaced the secondary administrative apparatus established in local communities located 25–30 km from Cuzco (Figure 40.4). Based on current artifact sequences and available radiocarbon dates, it appears that Inca territorial expansion outside the Cuzco basin began by around AD 1300, and that a century of military campaigns and alliance-building established Inca dominance throughout the area within about 50–70 km of Cuzco. At present, archaeological data cannot be used to determine whether or not the first imperial campaigns preceded the final politico-economic consolidation of the imperial heartland; the more detailed chronicles describing Inca expansion suggest that campaigns outside of an ethnic Quechua-dominated core region occurred shortly before the end of local resistance to Inca governance in the Cuzco region.

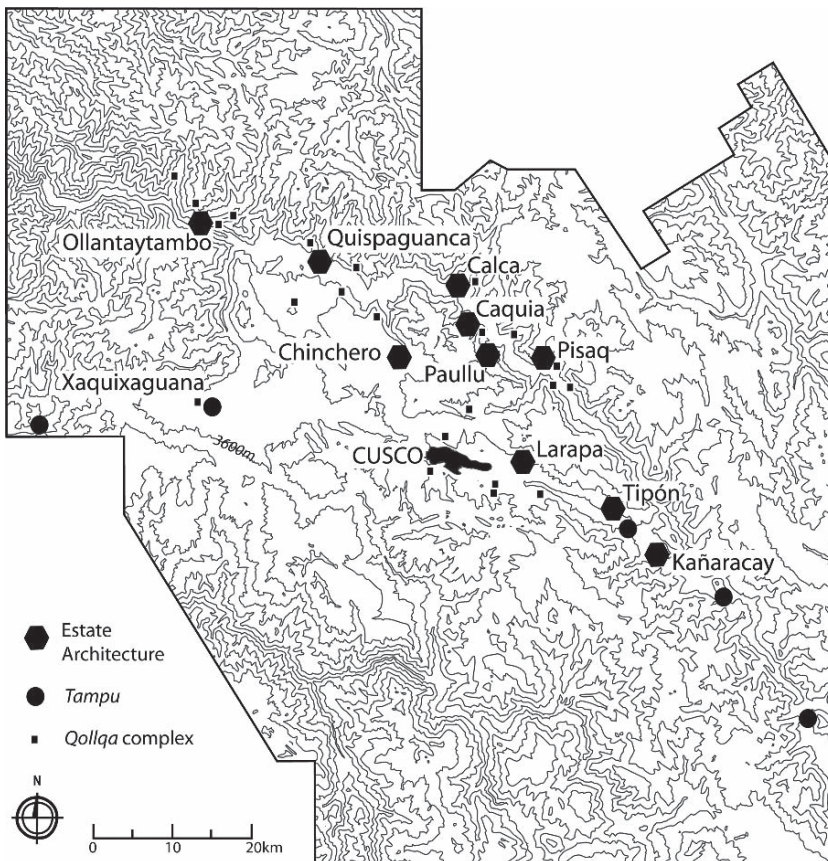


Figure 40.4. The Cuzco region in imperial times, with estates, qollqa complexes, and principal tampu locations shown. (Alan Covey)

PATTERNS OF IMPERIAL EXPANSION: INFRASTRUCTURE AND DIRECTNESS OF CONTROL OVER CONQUERED TERRITORIES

Beginning around AD 1400, the Incas embarked upon a sustained program of imperial expansion that lasted until the 1530s, when the Inca civil war (AD 1525–1532), European disease (which preceded actual Spanish presence in the Inca realm), and the European invasion (AD 1532) derailed the Incas' trajectory of conquest.

Inca imperial expansion wrought substantial changes in provincial regions, as well as in the area surrounding the capital. Just how punctuated Inca expansion really was has yet to be determined—horizontal excavations and radiocarbon dates from early Inca contexts are all but absent in highland areas that are 50–200 km from Cuzco (but see Sillar and Dean 2002). Radiocarbon dates from Inca provincial regions suggest that early campaigns into the Titicaca basin began around AD 1400, and that Inca influence spread throughout the fifteenth century (D'Altroy 2002: 45–47). The archaeological record reveals variations in the evolution of Inca provincial strategies (see Menzel 1959 for a classic statement in this regard), and the remains of Inca architecture and material culture permit archaeologists to identify critical patterns.

Roads and Way-stations

There is considerable variability in the distribution of roads and architectural remains throughout Inca territory, indicating that different aspects of imperial infrastructure were emphasized based on local conditions. The Incas invested labor tribute in the construction of a royal highway (*qhapaq ñan*) comprising an estimated 40,000 km of principal coastal and highland routes that were connected by numerous trunk roads (Hyslop 1984: 224) (Figure 40.1). The road system reduced the costs of moving caravans, military personnel, and information, binding imperial provinces to the capital; and linked coastal, highland, and Amazonian piedmont regions to a degree never achieved by earlier Andean states and empires. Inca roads were built with the principal purpose of linking imperial installations and local populations—rather than to provide easy movement between existing local settlements—and it is important to note that road construction in more indirectly administered provincial regions was of an intensity similar to that seen in directly administered highland areas. That is, Inca roads provided a more or less continuous link throughout the empire, to which was applied a specific suite of structures and spaces that facilitated different provincial strategies. The ubiquity of roads indicates a polity-wide priority on facilitating the movement of soldiers, staple and wealth goods, and information into and out of provincial regions.

The distribution of way-stations (*tampukuna*, singular form: *tampu*) and *chaski* (relay road-runner) posts (*wasi*) suggests that these sites should be considered part of the imperial road system, even though the maintenance of a *tampu* was administered locally (Hyslop 1984). Local variations in road construction and *tampu/chaski* placement appear to indicate that the implementation of imperial road-building policies was influenced by local conditions that also impacted imperial administrative strategies.

Imperial Enclaves, Secondary Facilities, and Administrative Centers

While the *qhapaq ñan* and its associated architecture can be identified throughout the imperial territory, considerable diversity can be noted for other Inca installations. For

the purposes of general comparison, the distinction can be made between (1) imperial enclaves established in existing local settlements; (2) secondary facilities (*sensu* D'Altroy 2002: 237) that were often built along the road system; and (3) new administrative centers that served as regional or provincial capitals. Architecture that was produced for imperial purposes can be contrasted with the replication or adaptation of Inca architectural forms by local elites to communicate their own positions vis-à-vis local populations.

Imperial enclaves were established in important local cities and towns where the Incas governed through existing political and religious hierarchies. Several imperial enclaves can be identified on the central coast at such sites as Cerro Azul and Tambo de Mala (Marcus et al. 1983–85; Menzel 1959). The Chinchá capital at La Centinela saw the construction of an Inca palace within the core area of elite residential and religious architecture (Morris 2004). At Pachacamac, on the central coast, the Incas constructed a major Sun temple and an *aqllawasi*—a cloistered complex where female ritual specialists instructed provincial girls in state rituals and the preparation of food and drink for state-sponsored festive and ritual occasions. (This training also selected and trained a female elite who served as religious officials, married prominent imperial officials, and were assigned to the state religion and the service of dead Inca elites). Pachacamac was a pan-regional shrine and oracle that was linked to sacred locations (*huaca/wak'akuna*) in the neighboring valleys of the central and south coast.

Enclaves are present in other parts of the empire, particularly in the southern parts of Qollasuyu where local administration was either indirect or incompletely consolidated. Noteworthy Inca enclaves include Turi in the Atacama desert (Mostny 1949) and La Puerta in central Chile (Niemeyer 1986). Imperial enclaves are consistent with a policy of indirect rule whereby Inca representatives were embedded in local polities but oversaw a limited suite of state interests while local elites continued to manage the existing political economy. This appears to characterize regions where it would be difficult to develop high-cost, high-return administrative forms—in particular, areas with centralized political or religious hierarchies and intensified agricultural production, as well as regions with marginal environments where natural resource acquisition was important. Inca officials living in local towns and cities probably managed lower order administrative sites located nearby.

Secondary facilities are sites that demonstrate planning and construction under imperial supervision, but at a more modest scale than that seen at administrative centers. Such sites are frequently found along the road system, outside of the administrative purview of imperial enclaves or cities (e.g., Hayashida 1999). On the north coast, local architectural forms were employed in constructing some administrative sites (Conrad 1977). In other provincial regions, Inca architecture and stone masonry contrast with local traditions. Secondary facilities were built to perform economic and administrative functions, to serve as residences of labor colonists from other parts of the empire, to facilitate local religious integration, and to provide strategic military protection (e.g., Alcina 1978; Bauer and Stanish 2001; Bürgi 1993; Earle 1994; Schjellerup 1997:242–243).

New *administrative centers* were established in highland regions, along the *qhapaq ñan* running from Cuzco to Chinchaysuyu and Qollasuyu. These include Quito, Tumi-pampa (Tomebamba), Cajamarca, Huamachuco, Huánuco Pampa, Pumpú, Hatun Xauxa (Jauja), Vilcashuamán, Raqchi, Hatun Qolla, Chucuito, and Copacabana (e.g., D'Altroy et al. 2001; González Carré et al. 1981; Hyslop 1990; Idrovo 1985; Julien 1983; Matos 1994; Morris and Thompson 1985; Sillar and Dean 2002; Topic and Topic 1993).

The establishment of these new administrative centers did not necessarily involve the permanent resettlement of large proportions of the tributary population. For instance, Craig Morris' excavations at Huánuco Pampa indicate that only the religious and administrative

sectors of that site are likely to have been occupied year-round. Urban construction involved laying out a large open plaza space with a central platform (*usnu*), as well as principal avenues and access-ways. Essential architectural complexes were constructed at the site, including administrative and elite residential compounds, a Sun temple, an *aqllawasi*, and storage facilities (called *collqa/qollqa*). Residential architecture for commoners varied in size and form, and was laid out opportunistically in the remaining open spaces.

In some regions administrative centers provided spaces for periodic administrative, festive, and ritual encounters between imperial officials and a number of ethnic groups and political units serving the center. In others, local populations shifted permanently to imperial installations, which they appear to have occupied continuously.

Local Co-option of Imperial Forms

Participation in Inca provincial administration created new strata of intermediate elites in places where they had previously not existed. Local elites appear to have modified imperial architectural forms for use at the local level, and the introduction of rectangular buildings at local settlements has been identified in the regions of Huánuco (Morris and Thompson 1985), Xauxa/Jauja (D'Altroy 2001a), the upper Vilcanota Valley (Kendall 1985), the Titicaca basin (Hyslop 1976:377–380), Moquegua (Stanish et al. 1993:83–84), and northwest Argentina (Hyslop 1990:245). The rectangular Inca form is not common and does not appear to be an imperial imposition, as there are modifications to the imperial canon and it is often found integrated into compounds of distinct vernacular architecture.

Archaeologically, the material impact of Inca provincial administration on most regions was minimal in rural areas and among commoners—local elites reproduced and modified imperial architecture and pottery styles, invoking both state and local connections to their best advantage.

Production Enclaves

In contrast with provincial areas where the Inca administrative presence targeted the management interface between the state and local administrators—as well as between local elites and the households for which they were responsible—some regions of the empire evidence a more intensive reconfiguration of economic production, with the establishment of what have been called production enclaves or state farms (D'Altroy 2002: 268–276; LaLone and LaLone 1987). Such installations tended to be concentrated in the coastal piedmont (*chawpi yunga*), intermontane *qhichwa/quechua* zones, and on the Amazonian piedmont (*ceja de montaña*)—essentially in areas where maize and other important crops (coca, cotton) could be produced intensively. New irrigated terraces were constructed in areas where local groups had not intensified agricultural production. Even though irrigation systems were well-developed in the lower parts of most coastal valleys, the Incas frequently constructed irrigation and terrace systems in mid-valley areas (for example, in the Pisco, Colca and Osmore valleys on the south coast). While state lands in certain provinces appear to have been brought on-line as part of the imperial political economy (e.g., around Hatun Xauxa in the Mantaro Valley in the central highlands), other production enclaves appear to have been under construction at the time of the Spanish conquest (e.g., at Cotapachi in Bolivia, Coctaca-Rodero in northwest Argentina). This may indicate that state intensification of available resources was part of an administrative consolidation policy that was not completed in many peripheral regions (see Julien 1998 for a documentary illustration of this).

Storage Facilities

Concomitant with an intensification of local agricultural production was an investment in complexes of storage architecture (*qollqa*/*collqa*) throughout the empire (see D'Altroy 2002: 280–285; Huaycochea Núñez de la Torre 1994; LeVine [ed.] 1992) (Figure 40.5). Storage is an identifiable element in administrative centers, and has been noted at secondary facilities as well. In provincial regions storage buildings tend to be laid out as rows of small square or circular structures. Complexes of more than 1,000 structures are known at the administrative center of Hatun Xauxa, as well as the production enclaves at Cotapachi in Bolivia and Campo de Pucará in northwest Argentina (Gyarmati and Varga 1998; Snead 1992). Most administrative cities appear to have had smaller numbers of structures (200–500), while lower-order sites tend to have even fewer, consistent with a more localized function for the facilities.

Fortifications

D'Altroy (2002: 209–213) has noted that Inca forts are distributed unevenly throughout the Empire, with concentrations near the northern and southern frontiers, as well as the limits of Qollasuyu, in modern Bolivia and northwest Argentina (see also Alconini 2004; Bray 1992; Hyslop 1988; 1990: 155–190) (Figure 40.6). Fortifications are concentrated in parts of the Atacama Desert, but some have pre-Inca construction dates (Hyslop 1990: 156). A lack of research prevents our stating whether a fortified frontier was a feature of eastern Antisuyu and Chinchaysuyu as well. A few fortified sites or military installations are



Figure 40.5. A qollqa complex at Ollantaytambo in the imperial heartland. (photo: Catherine Covey).

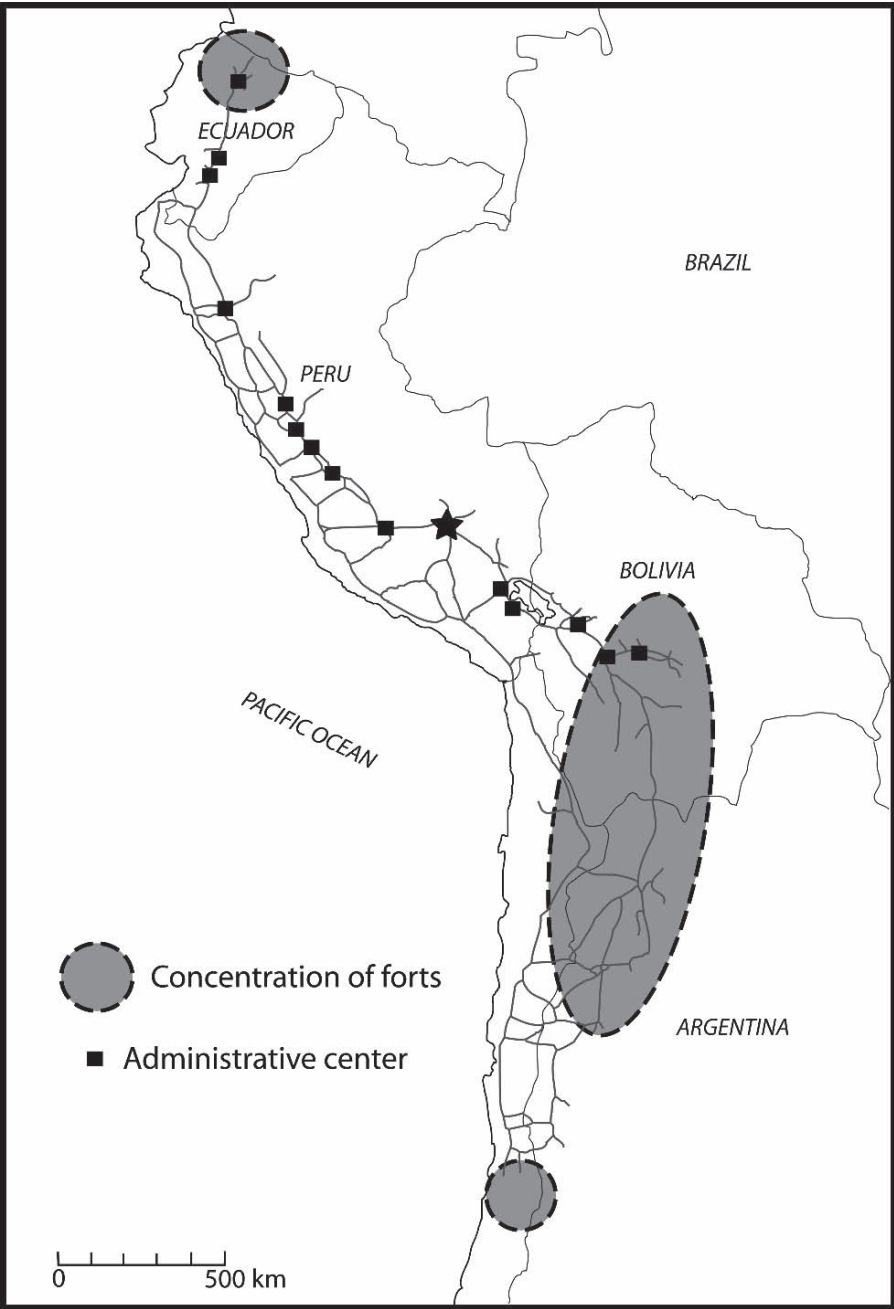


Figure 40.6. Inca forts are distributed unevenly throughout the empire. (Alan Covey)

known along the coast, although some may be artifacts of expansion campaigns rather than functioning mechanisms for maintaining control over local populations.

Forts are often constructed along Inca roads at the interface between the Andean highlands and Amazonian lowlands. Fort size and architectural forms vary substantially,

with local construction elements often present. Inca-style structures such as great halls (commonly known as *kallanka*), open spaces, and ritual or ceremonial constructions are seen at the larger fort complexes (Hyslop 1990: 189). The concentration of Inca fortified sites in certain parts of the empire suggests that defense or an ongoing military presence was an important element in continuing attempts to extend Inca territory, or to establish a frontier where further expansion was not feasible (Salomon 1986; Schjellerup 1997). Forts in some regions could promote provincial consolidation processes by protecting Inca subjects living within the frontier; in other regions systems of fortifications might facilitate economic interactions with autonomous local groups while discouraging the kind of raiding that would be expected among village societies along an important ecological and cultural frontier. Ongoing research along the Inca frontier will undoubtedly advance more dynamic perspectives on the limits of imperial territorial expansion.

ARCHITECTURAL TRANSFORMATIONS IN THE IMPERIAL HEARTLAND

As the Incas incorporated provincial territories into their domain, the Cuzco area was transformed into a region apart from the rest of the empire. Some local groups were resettled to provincial areas, while labor colonists (*mitmaqkuna*) and retainers (*yanakuna*) were brought to the Cuzco region from across the empire. Settlement patterns for the imperial period indicate major population shifts toward areas where intensive maize production was conducted. Settlement in the imperial period is more hierarchical and regularized, but while higher-order sites have strong ties to the Inca elite, small villages and hamlets appear to have been established opportunistically at the margins of improved farmlands.

Provincial production enclaves can be contrasted in the imperial heartland with estates developed by an Inca ruler or his wife and held corporately by his descent group (Covey 2006; D'Altroy 2002:127–140; Niles 2004) (Figure 40.4). As with production enclaves, estates are concentrated in the *qhichwa/quechua* and *ceja de montaña* (with specialized herding facilities in the small areas of *puna* grasslands near the capital). Estate construction involved impressive projects of river canalization and the construction of irrigation canals and terraces (Farrington 1983). The estates themselves exhibit different kinds of architecture and planning than have already been mentioned for urban settlements constructed in provincial regions. Juchuy Coscco and Chinchero contain large plaza spaces that are laid out without an *usnu*, but with a *kallanka* structure placed on a higher terrace occupying one side of the plaza. Other estates—for example, Písaq, Ollantaytambo, and Machu Picchu—lack these large open spaces but have religious architecture that is not as obvious at the other sites. Valley-bottom estates at Calca and Yucay have a more orthogonal layout that is consistent with the establishment of new centrally-designed settlements in the valley.

Storage facilities are generally disembedded from the principal estate architecture and follow a different architectural layout from provincial *qollqa* complexes (see Bauer 2004: 96–98; Covey 2006).

Architectural differences may indicate a distinct pattern of labor organization, storage, and redistribution in the imperial heartland, where *yanakuna* received lands and sustenance from the Inca elite in exchange for life-long service. Despite such differences, the Cuzco region was linked to the provinces by the *qhapaq ñan*, and *tampu* constructions were present as close as a day's walk from the capital.

INCA MATERIAL CULTURE AND ITS DISTRIBUTION

Architecture and roads provide the means of identifying some important pan-imperial administrative strategies, as well as local trajectories for the negotiation of the intensity of imperial rule. Other categories of material culture highlight the variability of the Inca imperial presence in provincial regions.

Ceramic Styles and Distribution

Imperial pottery was produced in the Cuzco region and was distributed widely at the local level throughout the imperial heartland (Bauer 2004: 91–93; Rowe 1946: 246) (Figure 40.7). Inca polychromes and provincial designs are common at royal estates and storage facilities, but the imperial style overlaps with Killke (or early Inca) pottery in many local contexts. Outside of the imperial heartland—the region within about 50–70km of the capital—the presence of Inca-style pottery is much more variable.

In certain provincial regions imperial administrators oversaw the production of pottery that replicated imperial wares, vessel forms, and decorative motifs (e.g., D’Altroy 2001b; Hayashida 1999; Menzel 1959; Morris 1995). Colonial Period documents attest to the presence of communities of potters in several provincial regions, and imperial pottery was used to communicate status and patronage during imperial festivals (Bray 2003). The scale of production of imperial pottery and its prevalence in and around important Inca installations contrasts starkly with the situation at local settlements, where Inca imperial styles are all but absent and where it can be difficult to distinguish Inca period settlements from earlier occupations (e.g., Canziani 1992; Grosboll 1993; Schreiber 1993: 91; Sillar and Dean 2002:238; Topic and Topic 1993:33; Valdez 2002).

The production and distribution of Inca style pottery was not achieved uniformly throughout the empire, and many provincial regions saw the innovation of Inca-influenced local styles that were distributed through existing networks dominated by local elites. Inca-style pottery is found near imperial enclaves and administrative centers, but is often virtually absent in local communities or in non-elite contexts (e.g., Conrad 1977). Some of the

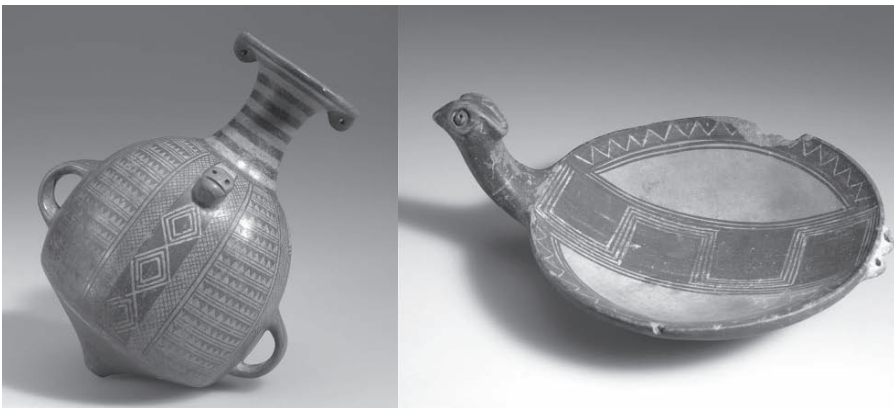


Figure 40.7. Inca-style serving vessels (photo: courtesy of the American Museum of Natural History). These vessel forms are frequently found in mortuary contexts throughout the empire.

better-known provincial styles are Orcosuyu, Pacajes, Ica, Chinchá, and Chimú, which have distinctive decorative motifs and vessel forms and were distributed widely. Other local imitations of Inca pottery involve the replication of common Inca vessel forms (e.g., the narrow-necked jar or plate), but with local decorative motifs (Watanabe 2002; Morris and Covey 2003).

The presence of Inca-style pottery in mortuary contexts in areas where imperial administrative control was indirect or altogether absent indicates that imperial ceramics conveyed a certain status to the possessor; the absence of large proportions of the style in local domestic refuse indicates either a lack of concern on the part of the state in communicating its patronage locally, or the lack of symbolic utility in the kinds of social interactions that local elites and their people would have had.

Textiles

Cloth production was an important element of Inca political economy (Murra 1989), and cloth seems to have been valued above virtually any other material item by the Incas and other Andean people. Coarse cloth was produced at the household level as a common form of provincial labor service, while fancy cloth (*kumpi*) was made by specialists (the *kumpikamayuc* and *aqlla*). Some examples—surely produced for royalty—are spectacular works of art (Figure 40.8). But Inca textiles present a problem for archaeologists because of the nature of the sample available for study. Most textiles are poorly provenanced, coming from looted tombs on the arid coast; preservation is poor in the highlands. Even with the controlled excavation of large Inca-era mortuary samples at sites such as Puruchuco, our sample of textiles will always be biased toward coastal provincial regions.

The same is true for another kind of textile—the *kipu* that coastal and highland groups used for record keeping in the centuries preceding the European invasion (see Chapter 41 in this volume and its figures). The discovery of new *kipu* samples in Chachapoyas and at Puruchuco holds the potential of elucidating some patterns of information coding in these devices (see, for example, Quilter and Urton 2002; Urton 2003; Chapter 41 in this volume), but the vast majority of our current museum samples are too poorly provenanced for archaeologists to use actively in reconstructing variability in Inca administrative strategies.

Exchange and Distribution of Preciosities

In general, it appears that access to exotic goods increased in regions coming under Inca influence or control. The Incas disseminated goods and technologies across their empire, and were very sensitive to the value added to an item by transporting it from one place to another. Studies of metal, shell, and other artifacts have demonstrated the impact that Inca imperial presence had on the production and distribution of exotic goods—even in provinces where local elites retained their offices. For example, mortuary contexts in the Chinchá Valley indicate a wider distribution of *Spondylus* shell objects, with a transition from zoomorphic adornments to necklaces of small, standardized beads (Kroeber and Strong 1924: 30–31). In the upper Mantaro Valley, which was dramatically transformed under direct Inca administration, access to wealth items like metal and shell broadened as imperial contacts increased the supply of such goods (Owen 2001). This has been interpreted as having the effect of reducing status distinctions between elites and commoners.



Figure 40.8. Inca-style cloth, of the fine variety (kumpi), was produced by specialists, often women, and employed in events that displayed and conferred status. This example is one of the finest Inca tunics known. It is decorated all over with the tocapu motif. (Copyright: Dumbarton Oaks, Pre-Columbian Collection, Washington, DC; Object accession number PC.B.518; used with permission)

Food

Analyses of macrobotanical remains, pollen, phytoliths, and fauna have made invaluable contributions to reconstructing the impacts of Inca administration on local populations. One fascinating argument is that the Incas' emphasis on public ritual—which involved mostly men and a great deal of chicha (maize beer) drinking—meant a significant increase in gender difference regarding maize consumption (see, for example, the essays in D'Altroy, Hastorf, and Associates 2001).

Biological Populations

Along with studies of food production and consumption before and during the period of Inca dominance, new bioarchaeological analytical techniques are now being used to address nutritional aspects of social status and demography (for example, Ceruti 2003). The ongoing bioarchaeological study of large Inca mortuary populations should yield unprecedented insights into ethnicity and migration, advancing Inca studies in areas where the chronicles are almost completely silent.

TAWANTINSUYU AS AN ANDEAN SOCIETY: CONTINUITIES AND TRANSFORMATIONS

The Incas called their Empire Tawantinsuyu, land of the four quarters (Chinchaysuyu, Cuntisuyu, Qollasuyu, Antisuyu). Many historical descriptions of Tawantinsuyu treat the Inca realm as a fully-formed entity whose meteoric rise and fall left scarce time for crafting imperial strategies. The development of certain pan-imperial infrastructure (for instance, the *qhapaq ñan*) and ritual activity indicate that an imperial identity was well-formed, and that variations in provincial government reflect different strategies and tempos of incorporation and administrative consolidation. Infrastructural investments may be described in terms of Andean values of ecological complementarity: the Inca state sought direct access to all resources considered worthwhile as staples or wealth items. This strategy was not completely realized by the time the Spanish arrived in 1532, and the presence of concentrations of fortifications along the imperial frontier indicates that control of the Amazonian lowlands required a more protracted process of expansion and consolidation in which ongoing military support was essential. This in turn encouraged a more professionalized army. Atahualpa's victory in the civil war with his half-brother, Huascar, just prior to the European invasion, may indicate a shift from sacred to military funds of power, but probably not the fragmentation of Inca imperial order.

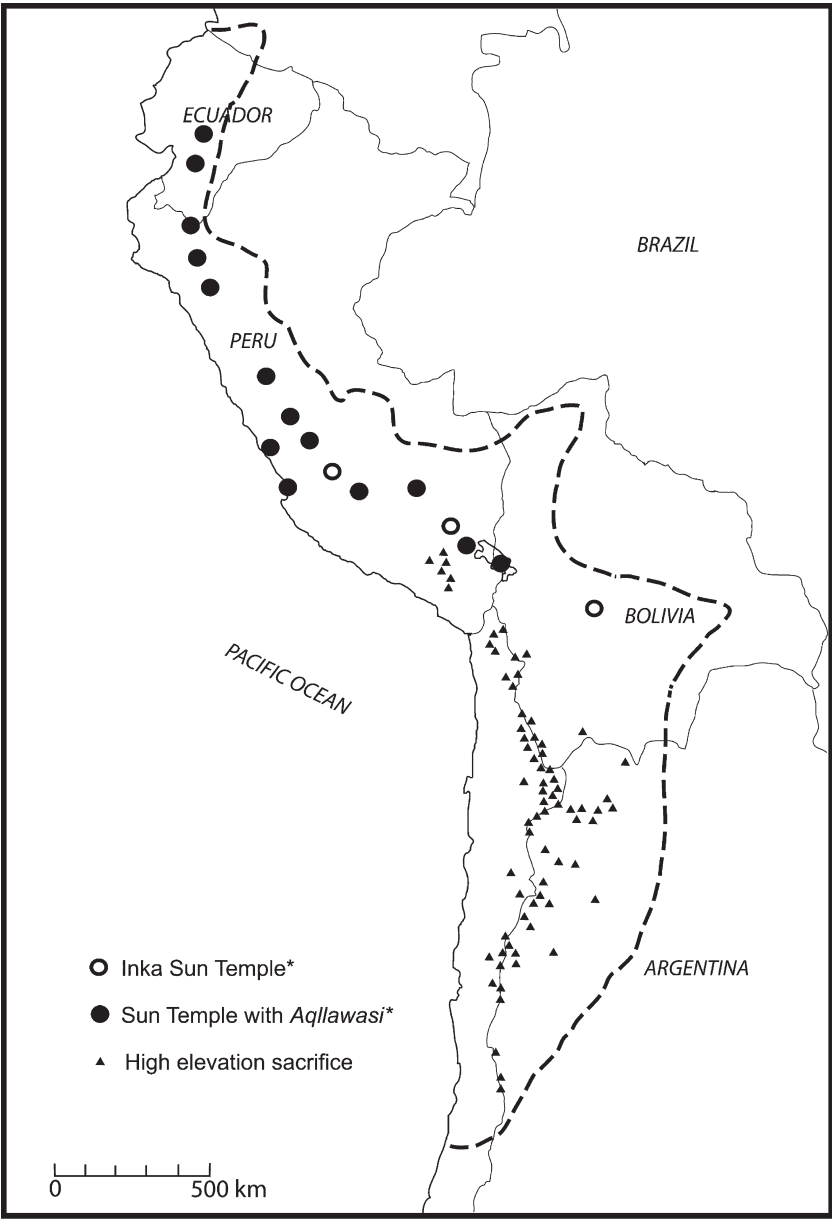
As has been noted (D'Altroy and Schreiber 2004), Tawantinsuyu shared certain characteristics with earlier Andean civilizations, most notably the Wari Empire. These include intensive maize economies, the development of roads and storage systems, and the use of the *kipu* for record keeping. It is possible that certain aspects of Inca elite authority—most obviously the ability to demand labor tribute—were first introduced to the Cuzco region by Wari elites, and certain aspects of Wari ceremonial life may have been adopted (or adapted) as post-Wari polities in the Cuzco region competed amongst themselves.

In identifying characteristics of Inca civilization that are common to earlier states and empires in the Andean region we must also acknowledge some important differences in scale and structure that distinguish Tawantinsuyu from earlier polities. The most obvious distinction is the scale of the Inca imperial enterprise. Not only did the Incas govern a population several orders of magnitude larger than any other Andean state, they also had to account for ethnic and environmental diversity to a greater degree.

Inca administrative architecture reveals a distinct strategy for integrating multiple political and ethnic units into the imperial order. New Inca administrative sites tended to have large open plazas, which were larger than those seen at Wari and Tiwanaku sites (see Chapter 37 in this volume). These spaces were used to structure encounters between Inca and provincial groups, and were the locus of elaborate processions, ritual battles, and public feasts. While Inca palaces display varying grades of access and exclusivity—a feature of the

palaces of other Andean states as well (compare, for example, Isbell 2004 to Pillsbury and Leonard 2004)—Inca plazas communicate a greater scale of lower-order participation in state ceremony, as well as perhaps a more ritually-oriented basis for imperial governance.

Archaeological remains indicate variability in the role religion played in imperial integration (Figure 40.9). Sacred places in the Cuzco region were maintained by



**According to Cieza de León (c. 1550)*

Figure 40.9. Inca religious integration. A Sun temple and associated aqllawasi were built at important sites in the northern part of the empire, while high elevation sacrifices were common in the south, in areas where temples were lacking. (Alan Covey)

Cuzco's elite, and were centrally coordinated (Bauer 1998). The Sun cult was important in the imperial heartland and proved useful in governing in Chinchaysuyu, while Inca patronage of pan-regional shrines and oracles such as Pariacaca, Pachacamac, and Titicaca helped to spread influence at the local level along parts of the coast and in the altiplano. The exchange of sacred objects helped to bind local ritual systems to the capital. So too did the exchange, so to speak, of provincial children by means of the qhapaq hucha ritual. This was a state ceremony whereby young men and women traveled to Cuzco to be sanctified, then returned to provincial regions where they were sacrificed (an excellent discussion of the qhapaq hucha is found in McEwan and van de Guchte 1992). It is said that the qhapaq hucha was practiced throughout the Empire. In the southern part of the Empire (Figure 40.9), high-elevation human sacrifices reveal a concern with propitiating the numinous mountain gods or apu (see González 1983: 359–360). The veneration of elite men and women, and especially the mummified bodies of founding ancestors and dead rulers (Isbell 1997), was an important element in Inca ceremonial life.

Some important distinctions can be made between Inca iconography and ritual practices and those of earlier Andean polities. Inca pottery and textiles lack pronounced depictions of supernatural beings, and the Incas are not known to have invested in public images of such entities (such as monumental statues or stelae). Hallucinogens do not appear to have had the prominence in Inca state religion that they played in Nasca, Wari, and Tiwanaku ceremonies. Human sacrifice involved children or adolescents, not adult military captives. Ritual activity involving trophy head curation was not practiced (see Chapters 29 and 52 in this volume). Soldiers—who were fed and compensated by the Inca state—were probably of a different social status than heroic warriors depicted on pre-Inca ceramics.

At a more mundane level, the Inca state invested heavily in economic intensification and highly visible storage facilities in certain provincial regions. In addition to intensifying agricultural production in maize-producing qhichwa/quechua valleys, the Inca state developed economic resources along the corridors between coastal/lowland and highland regions (e.g., Dillehay 1977). Earlier states and empires appear to have had only limited success in extending direct administrative control over the farming and herding populations of upper coastal valleys. The scale of storage capacity known for pre-Inca polities is modest by comparison. This suggests that the Inca state mobilized labor tribute more aggressively than its predecessors, and it invested in developing economic mechanisms that sustained province-level risk reduction strategies that bypassed existing systems of kin-based labor. Stored staples and wealth items were not part of the common weal; they funded state-sponsored festivities and maintained state officials and a military that was transitioning to more or less permanent service.

The institutions and administrative policies underlying the imperial order of Tawantinsuyu should be viewed as innovative elaborations of Andean patterns of complex sociopolitical organization that existed before ca. AD 1000. The archaeological record indicates some significant differences in scale and kind when the Inca imperial order is compared with earlier Andean states. Identifying such differences places a burden on archaeologists to be extremely cautious in our use of the Spanish chronicles to describe pre-Inca institutions (see, especially, Isbell 1995). As Max Uhle noted almost a century ago, we should project forward in time on the strength of our own data set, continuing to conduct problem-oriented research that will solidify the archaeological comparison of these earlier polities with Inca society.

REFERENCES

- Alcina F., José, 1978, Ingapirca: arquitectura y areas de asentamiento. *Revista de Antropología Americana* 8:127–146.
- Alconini, Sonia, 2004, The southeastern Inka frontier against the Chiriguanos: structure and dynamics of the Inka imperial borderlands. *Latin American Antiquity* 15(4):389–418.
- Bauer, Brian S., 1992, *The Development of the Inca State*. University of Texas Press, Austin.
- , 1998, *The Sacred Landscape of the Inca: The Cuzco Ceque System*. University of Texas Press, Austin.
- , 1999, The Early Ceramics of the Inca Heartland. *Fieldiana Anthropology*, New Series, 31. Field Museum of Natural History, Chicago.
- , 2004, *Ancient Cuzco: Heartland of the Inca*. University of Texas Press, Austin.
- and R. Alan Covey, 2002, Processes of state formation in the Inca heartland (Cuzco, Peru). *American Anthropologist* 104 (3): 846–864.
- and Charles Stanish, 2001, *Ritual and Pilgrimage in the Ancient Andes*. University of Texas Press, Austin.
- Bray, Tamara L., 1992, Archaeological survey in northern highland Ecuador: Inca imperialism and the País Caranqui. *World Archaeology* 24 (2): 218–233.
- , 2003, Inka pottery as culinary equipment: food, feasting, and gender in imperial state design. *Latin American Antiquity* 14 (1): 3–28.
- Bürgi, Peter, 1993, The Inca Empire's Expansion into the Coastal Sierra Region West of Lake Titicaca. Ph.D. dissertation. Department of Anthropology, University of Chicago.
- Canziani A., José, 1992, Patronos de asentamiento en la arqueología del valle de Chíncha, Perú. In *II Curso de Prehistoria de América Hispana*, pp. 87–123. Murcia.
- Ceruti, María Constanza, 2003, Elegidos de los dioses: identidad y estatus en las víctimas sacrificiales del volcán Lullallaco. *Boletín de Arqueología PUCP* 7: 263–275. Pontificia Universidad Católica del Perú, Lima.
- Conrad, Geoffrey W., 1977, Chiquitoy Viejo: an Inca administrative center in the Chicama Valley, Peru. *Journal of Field Archaeology* 4: 1–18.
- Covey, R. Alan, 2006, *How the Incas Built Their Heartland: State Formation and the Innovation of Imperial Strategies in the Sacred Valley, Peru*. University of Michigan Press, Ann Arbor.
- , Véronique Bélisle, and Allison R. Davis, 2006, Variations in Late Intermediate Period Group Interaction in the Cuzco Region (Peru). Paper delivered at the 71st Annual Meeting of the Society for American Archaeology. San Juan, Puerto Rico.
- D'Altroy, Terence N., 2001a, The archaeological context. In *Empire and Domestic Economy*, edited by Terence D'Altroy, Christine A. Hastorf, and Associates, pp. 65–96. Kluwer Academic/Plenum Press, New York.
- , 2001b, State goods in the domestic economy: the Inka ceramic assemblage. In *Empire and Domestic Economy*, edited by Terence N. D'Altroy, Christine A. Hastorf, and Associates, pp. 243–264. Kluwer Academic/Plenum Press, New York.
- , 2002, *The Incas*. Blackwell, New York.
- , Christine A. Hastorf, and Associates (eds.), 2001, *Empire and Domestic Economy*. Kluwer Academic/Plenum Publishers, New York.
- and Katharina J. Schreiber, 2004 Andean Empires. In *Andean Archaeology*, edited by Helaine Silverman, pp. 255–279. Blackwell, New York.
- Dillehay, Tom D., 1977, Tawantinsuyu integration of the Chillón Valley, Peru: a case of Inca geo-political mastery. *Journal of Field Archaeology* 4: 397–405.
- Earle, Timothy, 1994, Wealth finance in the Inca Empire: evidence from the Calchaquí Valley. *American Antiquity* 59 (3): 443–460.
- Farrington, Ian S., 1983, Prehistoric intensive agriculture: preliminary notes on river canalization in the sacred valley of the Incas. In *Drained Field Agriculture in Central and South America*, edited by J. P. Darch, pp. 221–235. BAR International Series, 189.
- González, Alberto Rex, 1983, Inca settlement patterns in a marginal province of the empire: sociocultural implications. In *Prehistoric Settlement Patterns: Essays in Honor of Gordon R. Willey*, edited by Evon Z. Vogt and Richard Leventhal, pp. 337–360. University of New Mexico Press, Albuquerque.
- González Carré, Enrique, Jorge Cosmopolis, and Jorge Lévano, 1981, *La Ciudad Inca de Vilcashuamán*. Universidad Nacional de San Cristóbal de Huamanga, Ayacucho.
- Grosboll, Sue, 1993, And He Said in the Time of the Ynga, They Paid Tribute and Served the Ynga. In *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, edited by Michael Malpass, pp. 44–76. University of Iowa Press, Iowa City.

- Gyarmati, János, and András Varga, 1999, *The Chacras of War: An Inca Estate in the Cochabamba Valley, Bolivia*. Museum of Ethnography, Budapest.
- Hayashida, Frances M., 1999, Style, technology, and state production: Inca pottery manufacture in the Leche Valley, Peru. *Latin American Antiquity* 10 (4): 337–352.
- Hiltunen, Juha, and Gordon F. McEwan, 2004, Knowing the Inca past. In *Andean Archaeology*, edited by Helaine Silverman, pp. 237–254. Blackwell, New York.
- Huaycochea Núñez de la Torre, Flor de María, 1994, *Qolqas, Bancos de Reserva Andinos: Almacenes Incas, Arqueología de Qolqas*. Universidad Nacional de San Antonio Abad del Cusco, Cuzco.
- Hyslop, John, 1976, An Archaeological Investigation of the Lupaca Kingdom and Its Origins. Ph.D. dissertation. Department of Anthropology, Columbia University.
- , 1984, *The Inca Road System*. Academic Press, New York.
- , 1988, Las fronteras estatales extremas del Tawantinsuyu. In *La Frontera del Estado Inca*, edited by Tom D. Dillehay and Patricia J. Netherly, pp. 33–51. Fundación Alexander von Humboldt, Quito.
- , 1990, *Inca Settlement Planning*. University of Texas Press, Austin.
- Idrovo, Jaime, 1985, Tomebamba: primera fase de conquista incásica en los Andes septentrionales. Los cañaris y la conquista incásica del Austro ecuatoriano. In *La Frontera del Estado Inca*, edited by Tom D. Dillehay and Patricia J. Netherly, pp. 71–84. Fundación Alexander von Humboldt, Quito.
- Isbell, William H., 1995, Constructing the Andean past, or “as you like it.” *Journal of the Steward Anthropological Society* 23 (1–2): 1–12.
- , 1997, *Mummies and Mortuary Monuments: A Post-Processual Prehistory of Andean Social Organization*. University of Texas Press, Austin.
- , 2004, Palaces and politics in the Andean Middle Horizon. In *Palaces of the Ancient New World*, edited by Susan Toby Evans and Joanne Pillsbury, pp. 191–246. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Julien, Catherine J., 1983, *Hatunqolla: A View of Inca Rule from the Lake Titicaca Region*. Publications in Anthropology, 15. University of California Press, Berkeley.
- , 1998, Coca production on the Inca frontier: the yungas of Chuquioma. *Andean Past* 5: 129–160.
- Kendall, Ann, 1985, *Aspects of Inca Architecture: Description, Function and Chronology*, Parts 1 and 2. BAR International Series, 242.
- Kroeber, Alfred L. and William Duncan Strong, 1924, The Uhle collections from Chincha. *University of California Publications in American Archaeology and Ethnology* 21: 1–54.
- La Lone, Mary B. and Darrell E. La Lone, 1987, The Inca state in the southern highlands: state administration and production enclaves. *Ethnohistory* 34 (1): 47–62.
- Le Vine, Terry Y. (ed.), 1992, *Inca Storage Systems*. University of Oklahoma Press, Norman.
- Lynch, Thomas, 1993, The identification of Inca posts and roads from Catarpe to Río Frío, Chile. In *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, edited by Michael Malpass, pp. 117–142. University of Iowa Press, Iowa City.
- Marcus, Joyce, Ramiro Matos Mendieta, and María Rostworowski de Diez Canseco, 1983–85, Arquitectura inca de Cerro Azul, valle de Cañete. *Revista del Museo Nacional* 47: 125–138.
- Matos M., Ramiro, 1994, *Pumpu: Centro Administrativo Inca de la Puna de Junín*. Editorial Horizonte, Lima.
- McEwan, Colin and Maarten van de Guchte, 1992, Ancestral time and sacred space in Inca state ritual. In *The Ancient Americas. Art from Sacred Landscapes*, edited by Richard F. Townsend, pp. 359–371. The Art Institute of Chicago, Chicago.
- McEwan, Gordon F., Melissa Chatfield, and Arminda Gibaja, 2002, The archaeology of Inca origins: excavations at Choquepuquio, Cuzco, Peru. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, 287–301. Kluwer Academic/Plenum Publishers, New York.
- Menzel, Dorothy, 1959, The Inca occupation of the south coast of Peru. *Southwestern Journal of Anthropology* 15 (2): 125–142.
- Morris, Craig, 1995, Symbols to power: styles and media in the Inka state. In *Style, Society, and Person: Archaeological and Ethnological Perspectives*, edited by Christopher Carr and Jill E. Neitzel, pp. 419–433. Plenum Publishers, New York.
- , 2004, Enclosures of power: the multiple spaces of Inca administrative palaces. In *Palaces of the Ancient New World*, edited by Susan Toby Evans and Joanne Pillsbury, pp. 299–321. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- and R. Alan Covey, 2003, La plaza central de Huánuco Pampa: espacio y transformación. *Boletín de Arqueología PUCP* 7: 133–149. Pontificia Universidad Católica del Perú, Lima.
- and Donald E. Thompson, 1985, *Huánuco Pampa: An Inca City and Its Hinterland*. Thames and Hudson, New York.

- Mostny, Grete, 1949, Ciudades atacameñas—norte de Chile. *Boletín del Museo Nacional de Historia Natural* 24: 125–204.
- Murra, John V., 1980 [1955], *The Economic Organization of the Inka State*. JAI Press, Greenwich, CT.
- , 1989, Cloth and its function in the Inca state. In *Cloth and Human Experience*, edited by Annette B. Weiner and Jane Schneider, pp. 275–302. Smithsonian Institution Press, Washington, D.C.
- Niemeyer, Hans, 1986, La ocupación inkaica de la cuenca alta del Río Copiapó. *Comechingonía—Revista de Antropología e Historia* 4: 165–294.
- Niles, Susan A., 2004, The nature of Inca royal estates. In *Machu Picchu: Unveiling the Mystery of the Incas*, edited by Richard L. Burger and Lucy C. Salazar, pp. 49–68. Yale University Press, New Haven.
- Owen, Bruce, 2001, The economy of metal and shell wealth goods. In *Empire and Domestic Economy*, edited by Terence N. D'Altroy, Christine A. Hastorf, and Associates, pp. 265–296. Kluwer Academic/Plenum Publishers, New York.
- Pärssinen, Martti, 1992, *Tawantinsuyu: The Inca State and its Political Organization*. Societas Historica Finlandiae, Helsinki.
- Parsons, Jeffrey R., Charles M. Hastings, and Ramiro Matos M., 2000, *Prehispanic Settlement Patterns in the Upper Mantaro and Tarma Drainages, Junín, Peru. Volume 1: The Tarama-Chinchaycocha Region*. Pt. 1. University of Michigan Museum of Anthropology, Memoirs, 34. Ann Arbor.
- Pease, Franklin, 1991, *Los Incas. Una Introducción*. Pontificia Universidad Católica del Perú, Lima.
- Pillsbury, Joanne and Banks L. Leonard, 2004, Identifying Chimú palaces: elite residential architecture in the Late Intermediate Period. In *Palaces of the Ancient New World*, edited by Susan Toby Evans and Joanne Pillsbury, pp. 247–298. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Quilter, Jeffrey and Gary Urton (eds.), 2002, *Narrative Threads: Accounting and Recounting in Andean Khipu*. University of Texas Press, Austin.
- Rostworowski, Maria, 1999, *History of the Inca Realm*. Cambridge University Press, Cambridge.
- Rowe, John H., 1944, *An Introduction to the Archaeology of Cuzco*. Papers of the Peabody Museum of American Archaeology and Ethnology 27 (2).
- , 1946, Inca culture at the time of the Spanish conquest. In *Handbook of South American Indians, Volume 2: The Andean Civilizations*, edited by Julian H. Steward, pp. 183–330. Bulletin 143, Bureau of American Ethnology. Smithsonian Institution, Washington D.C.
- Salomon, Frank, 1986, Vertical politics on the Inca frontier. In *Anthropological History of Andean Politics*, edited by John V. Murra, Nathan Wachtel, and Jacques Revel, pp. 89–117. Cambridge University Press, New York.
- Schjellerup, Inge R., 1997, *Incas and Spaniards in the Conquest of the Chachapoyas. Archaeological and Ethno-historical Research in the North-eastern Andes of Peru*. GOTARC Series B. Gothenburg Archaeological Theses, 7. Department of Archaeology, Göteborg University, Göteborg, Sweden.
- Schreiber, Katharina J., 1993, The Inca occupation of Andamarca, Lucanas, Peru. In *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, edited by Michael Malpass, pp. 77–116. University of Iowa Press, Iowa City.
- Sillar, Bill and Emily Dean, 2002, Identidad étnica bajo el dominio inca: una evaluación arqueológica y etnohistórica de las repercusiones del estado Inka en el grupo étnico Canas. *Boletín de Arqueología PUCP* 6: 205–264. Pontificia Universidad Católica del Perú, Lima.
- Snead, James, 1992, Imperial infrastructure and the Inka state storage system. In *Inka Storage Systems*, edited by Terry Y. LeVine, pp. 62–106. University of Oklahoma Press, Norman.
- Stanish, Charles, 2001, Regional research on the Inca. *Journal of Archaeological Research* 9 (3): 213–241.
- , Edmundo de la Vega M., and Kirk Lawrence Frye, 1993, Domestic architecture of Lupaqa area sites. In *Domestic Architecture in South Central Andean Prehistory*, edited by Mark Aldenderfer, pp. 83–93. University of Iowa Press, Iowa City.
- Topic, John R. and Theresa Lange Topic, 1993, A summary of the Inca occupation of Huamachuco. In *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, edited by Michael Malpass, pp. 17–43. University of Iowa Press, Iowa City.
- Uhle, Max, 1912, Los orígenes de los incas. *Actas del XVII Congreso Internacional de Americanistas*, pp. 302–352. Buenos Aires.
- Urton, Gary, 1990, *The History of a Myth. Pacariqtambo and the Origin of the Inkas*. University of Texas Press, Austin.
- , 2003, *Signs of the Inka Khipu*. University of Texas Press, Austin.
- Valdez, Lidio, 2002, Y la tradición continua: la alfarería de la época inka en el valle de Ayacucho, Perú. *Boletín de Arqueología PUCP* 6: 395–410. Pontificia Universidad Católica del Perú, Lima.
- Watanabe, Shinya, 2002, El reino de Cuismancu: orígenes y transformación en el Tawantinsuyu. *Boletín de Arqueología PUCP* 6: 107–136. Pontificia Universidad Católica del Perú, Lima.
- Zuidema, R., Tom, 1964, *The Ceque System of Cuzco*. E. J. Brill, Leiden.

The Inca Khipu: Knotted-Cord Record Keeping in the Andes

GARY URTON

INTRODUCTION

The knotted-stringed instrument used for record keeping in the Inca empire, known as khipu, from Quechua, “knot” [Note 1], was the subject of considerable interest from the earliest days following the Spanish invasion of the Andes, beginning in 1532. Early post-conquest reports of encounters with Inca record keepers tell of old men carrying bundles of strings with which they recounted all manner of information pertaining to the Andean past—from census figures for this or that province to details of the deeds performed by each of the dozen kings that had ruled before the arrival of the Europeans (Cieza 1967; Pizarro 1920).

The recording device in question was a construction of knotted, colorful strings made of spun and plied camelid hair or cotton fiber (Figure 41.1). These devices were used by Inca state record keepers for retaining different types of administrative records and for registering information consulted in the production of historical and other types of narrative performances (Cobo 1983; Garcilaso de la Vega 1966; Mackey et al. 1990; Quilter and Urton 2002; Urton 1998). While it remains uncertain how narratives were produced from the knotted-string registers, we understand a good deal about how quantitative information and statistical data were recorded.

KHIPU CONSTRUCTION

What are commonly referred to as “Inca khipu” display a myriad of variations on the structure shown in Figure 41.2. The following overview of khipu construction features is based on the study of 301 samples entered into the Khipu Database (KDB), at Harvard University (see the project website at: <http://khipukamayuq.fas.harvard.edu/>).

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

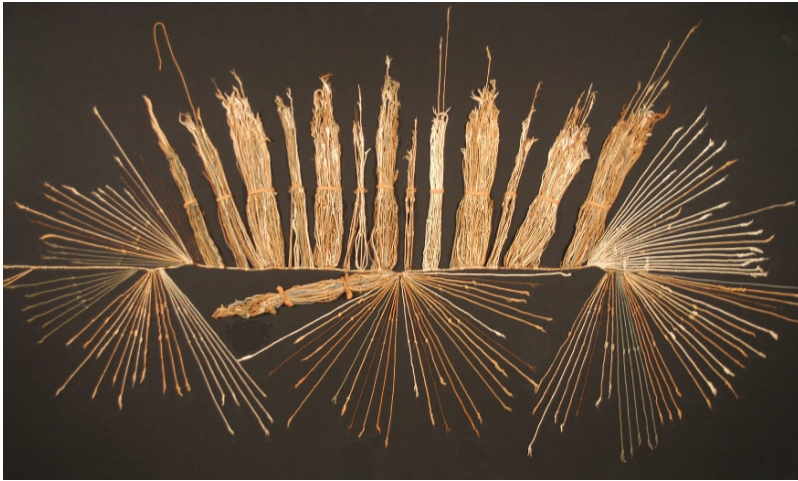


Figure 41.1. A large khipu in the Ethnographic Museum, Göteborg, Sweden. (photo by Gary Urton)

Khipu are composed of a variable number of spun and twisted threads, called pendant cords or strings that are attached by means of half-hitch knots to a thicker cord, the latter of which is referred to as a primary cord. The average thickness of primary cords is 0.26 cm, and their average length is 61 cm. The average number of pendant cords per khipu on samples in the KDB is 60; the median number per device is 27. The average length of pendant strings is 33 cm, and the average thickness of the approximately 1,300 measured to date is 0.16 cm. In 35% of cases recorded in the KDB, pendant cords have attached to them what are commonly called subsidiary cords. Subsidiary cords may have second-order subsidiary cords attached to them, and so on down to several levels of subsidiaries. The deepest level of subsidiary attachments recorded to date is on a sample (AS70/UR35 [Note 2]) from Arica, Chile; this sample bears pendant cords with as many as thirteen levels of subsidiaries (Figure 41.3).

Eighteen out of the 301 samples bear what are referred to as top cords. These cords are attached to the primary cord opposite the pendant cords. Many top cords have their attachments passing through the loop(s) of the half-hitch knot attachments of groups of pendant cords. Many years ago Locke (1923) showed that on khipu containing numerical/statistical data that have top cords, the sum of the numerical data registered on groups of pendant cords bound to the same top cord appeared on that top cord itself.

As stated earlier, khipu are made of either cotton fibers or camelid hair, although the vast majority—all but four of the 301 samples in the KDB—are of cotton [Note 3]. In a small number of samples, khipu made primarily of one of these materials bear a few cords made of the other material. Khipu are generally quite colorful. This is often a result of the use of differently colored camelid hairs (these vary in hues of white, beige, brown, black) or cotton fibers (ancient Andean domesticated cotton varies greatly in color: white, and various hues of brown from light brown to chocolate) (Conklin, 2002: 60). In addition to these material-based sources of color differences, cords were often dyed with vegetal dyes (Arellano 1999).

Three major types of knots were tied into khipu pendant, subsidiary, and top cords (primary cords are rarely knotted). The three knot types are referred to as: figure-eight

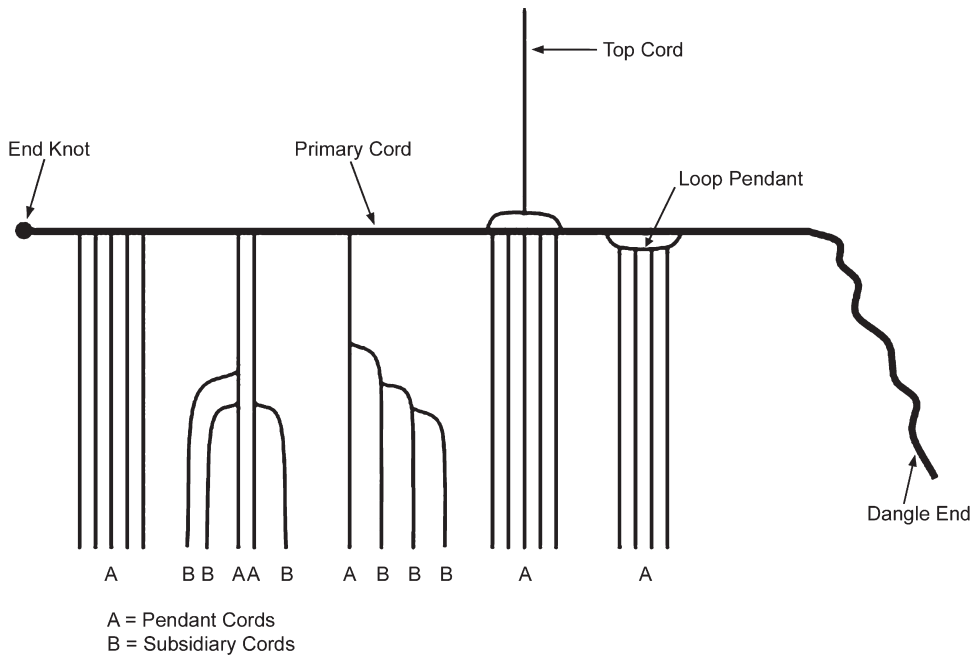


Figure 41.2. Basic structural components of khipu construction. (Gary Urton)



Figure 41.3. Numerous subsidiary strings attached to pendant cords on a khipu (AS70/UR35) in the Museo Chileno de Arte Precolombino, Santiago de Chile. (photo by Gary Urton)

knots, whose final shape is indicated by the name of this knot; long knots, which are made by turning the cord (usually) between two to nine times inside the body of the knot; and single or overhand knots. These three knot types were central elements in the signaling of quantitative information in the decimal-based system of administration in the empire (Locke 1923; Ascher and Ascher 1997; Julien 1988; Pereyra S. 1996, 2001).

Each of the three types of knots described above may be tied in one or the other of two different ways, which result in variations in the axial orientation of the knots. That is, they may be tied so as to have a dominant axis running across or inside the body of the knot from upper right to lower left (= Z-knot), or the knot may be tied to have the dominant axis running from upper left to lower right (= S-knot; see Urton 1994). The tying of knots as either Z- or S-knots was one of the forms of structural variation in khipu construction around which sign values may have been constructed in what has been argued was a binary coding system (see Urton 2003).

NUMBER, PROVENANCE, AND DATING OF KHIPU SAMPLES AND COLLECTIONS

Virtually everything about khipu is subject to dispute, and this extends even to the number of these artifacts currently housed in museum and private collections around the world. From my own inventory, I have arrived at the figure of 734 extant khipu (see the inventory at the KDB website). The main source of disagreement with regard to the number of khipu is the count of samples in the largest known collection, that in the Museum für Völkerkunde, in Berlin, Germany (Figure 41.4). My own count of the khipu in Berlin produced a tally of 298 samples. In a recent restudy of this collection, however, Loza (1999) has reported that there are 402 samples in Berlin. The central issue appears to be how one counts fragmentary samples. If Loza is correct in her count, this would bring the total number of extant khipu to around 838.

Even more troublesome than tallying the total number of extant khipu is accounting for their provenance and the archaeological context of their recovery. Khipu are seldom attributed in museum records with more precise provenance data than the name of a general region (e.g., Paracas, Ica-Callango), a river valley (e.g., Santa, Nazca), or an archaeological



Figure 41.4. Khipu samples in a storage drawer in the Museum für Völkerkunde, Berlin. (photo by Gary Urton)

site (e.g., Armatambo, Playa Miller #6). This reflects the fact that khipu were usually taken by grave robbers from sites along the Peruvian or Chilean coastal deserts and were then put up for sale on the international antiquities market.

Due to uncertainty surrounding their precise location before looting occurred, it has proven extremely difficult to develop an understanding of the inter-relationships among samples that were supposedly from the same area. In the past, khipu from the same region or site were often dispersed to museum and private collections in different countries, even to different continents. It has been argued that khipu researchers should attempt to reunite samples with common provenance as these may once have composed archives—collections of stored documents (Radicati 1964: 9; Urton 2005). The objective of the archival approach is to attempt to reconstitute groups of khipu that were produced as the collective administrative records of populations living in specific sites around the former territory of the Inca empire. There are, in fact, about a half dozen collections, or archives, of khipu in the extant corpus that were recovered in archaeological excavations. These include a pair of samples (AS48 and AS49) excavated by the University of Tokyo 1958 expedition to La Centinela, on the south coast of Peru (Ascher and Ascher website). Another nine samples (AS59–AS67) from the Peruvian south coastal site of Chala were excavated by Dorothy Menzel and were later deposited with Oscar Nuñez del Prado in Cuzco (see Ascher and Ascher website; Mackey, 1970: 259–62). Two samples (AS36 and AS37) were excavated in 1925 at the site of Maranga, in the lower Rimac Valley, in a tomb that also contained four mummy bundles, an undecorated cooking pot, a gourd, and *Spondylus* fragments (Jijón y Caamaño, 1949: 119, 397, plate LXXVIII). Three very large and complex khipu (AS69, AS71 and AS70/UR35) were excavated by Percy Dauelsberg at the site of Playa Miller #6 near Arica, Chile (Oscar Espouey, personal communication, 2005).

Although the samples listed above were recovered during controlled archaeological excavations, the descriptions of the actual contexts of discovery in each case are sketchy, at best. There are, on the other hand, two archival groupings of khipu for which we have reasonably good archaeological context as well as good descriptions of those contexts. One of these is a set of 21 samples found in an urn inside a tomb located beneath the floor of a house that was attached to one of the perimeter walls of what has been referred to as the palace of Puruchuco (Mackey 1970; Villacorta Ostolaza 2005). The site of Puruchuco is located south of the Rimac River, just where a canal off the river enters the open plain to the west of the Andean foothills, about 11.5 km to the northeast of the center of present-day Lima, in the district of Ate. In a recent re-study of this collection of khipu, Brezine and I found that 7 of the 21 khipu from the Puruchuco archive constitute what we refer to as an “accounting hierarchy” (Urton and Brezine 2005). This group of 7 khipu represents the best evidence available to date for the procedures by which complex information was transferred between different accounting levels in the Inca hierarchical administration. Instructions of higher-level officials for lower-level ones would have moved down, via khipu, from the top of the hierarchy. This information would have been partitive in nature, with assignments made to groups of 1,000 workers broken down into two groups of 500, and so on. In the reverse direction, local accountants would forward information on accomplished tasks upward through the hierarchy, with information at each successive level representing the summation of accounts from the levels below.

The other collection of khipu found in a reasonably good and subsequently well-described archaeological context is the group of 32 samples found in two rock overhangs above and a short distance from Laguna de los Cóndores, a lake in tropical northeastern Peru in the Department of San Martín (Figure 41.5). The majority of these khipu were



Figure 41.5. A khipu found in the plundered grave goods at Laguna de los Cóndores. (photo by Keith Muscutt)

found associated with some 225 mummy bundles in a half-dozen above-ground burial chambers within one of the two rock overhang sites, known as LC1 (Guillen 1999; von Hagen and Guillen 1998; Urton 2001).

The pre-Columbian culture occupying this region is known as Chachapoya (see Chapter 45 in this volume). The khipu themselves, however, were undoubtedly products of the Chachapoya-Inca culture, a complex hybrid society that emerged in the cloud forest between the central Marañón and Huallaga rivers following the Inca conquest of this region, in the late fifteenth to early sixteenth centuries. The Laguna de los Cóndores khipu archives contain one of the most convincing khipu calendars identified to date (Urton 2001; see also Zuidema for a study of a calendar from Ica), as well as a particularly interesting and complex example of a set of “matching khipu.” This latter phrase refers to two or more samples that share identical, or very similar, color patterning and numerical values (see Urton 2005). The similarity and overlap of data registered on the set of three Chachapoya-Inca khipu points to the potential archival relationships among multiple samples deriving from the same archaeological site or provenance zone.

It is common to refer to the artifacts we have been discussing here as “Inca khipu,” implying thereby that the objects in question were made and used in the Andes between ca. AD 1400–1532. In fact, through to today there has not been much information from either the absolute or relative dating of samples to support such claims. We actually know very little about the chronology of the production and use of Inca khipu. Even more uncertain is the question of precedents, or antecedents, of Inca (i.e., Late Horizon) period knotted string records. It is widely believed that khipu technology of the Late Horizon was a development from an earlier, Middle Horizon (Wari) cord recording technology. In the samples that have been attributed to the pre-Inca Wari, it appears that recording was performed not by way of knots but by means of thread wrapping of cords in colorful bands using fine, brightly dyed threads of camelid fiber. Although we have good studies of the patterns of thread-wrapping

on a few Middle Horizon samples (Conklin 1982; Pereyra S. 1997) and even archaeological recovery of at least one sample from a good Middle Horizon context (Shady et al. 2000), we do not yet have convincing arguments either for how information was encoded by means of thread wrapping, nor for how or when Middle Horizon thread-wrapped khipu evolved into Late Horizon Inca knotted-string khipu.

With regard to the dating of the production and use of khipu that presumably occurred during the Inca period, the Puruchuco and Chachapoya collections are again of particular interest. In the former case, the urn in which the 21 khipu from Puruchuco were found is described in the field notes made at the time of their recovery as “a narrow-necked urn [cantaro], semi-ovoid in form, covered with soot and with an applique on the outer body in the form of a serpent” (cited in Urton and Brezine, 2005: 1067, note 3). Ceramics of the style described in this burial (especially urns with strip applique in the form of serpents) are typical of the style of central coastal wares referred to as Yschma, or Huancho (Cornejo Guerrero 2000: 166). This was the common local ceramic style during the late Late Intermediate Period to Late Horizon in the three rivers valleys—Chillón, Rimac, Lurín—that made up the core territory of the Kingdom of Yschma, which had its ritual and pilgrimage center at the site of Pachacamac (see Chapter 38 in this volume). The association of the khipu from Puruchuco with an Yschma/Huancho style urn suggests that this set of khipu was related to the keeping of accounts by Inca record keepers within the territory of this important coastal administrative center.

The Chachapoya-Inca khipu from Laguna de los Cóndores were found in association with ceramics and textiles in styles ranging from the Late Intermediate Period through to the Late Horizon (von Hagen 2000). However, glass beads, glazed pottery, and a small Latin cross found in the disturbed burial chambers provide evidence of the continued production and curation of mummies, as well as engagement with other valued burial items, such as the khipu, into early colonial times (Urton 2001: 132). In addition to these sources of relative dating, we have five radiocarbon dates taken from khipu samples at this site. Four of these (calibrated) AMS readings produced dates between AD 1479 \pm 38 and 1531 \pm 69 [Note 4]. The fifth AMS calibrated reading from the site of LC1 gave a date of AD 1203 \pm 34. I am inclined to disregard the latter reading, as it is so far out of line with the other four readings from the same site. This leaves us, then, with C¹⁴ dates that place the tested samples from Laguna de los Cóndores beginning around the late fifteenth century when it is thought the Incas entered the Chachapoyas area (Chapter 45 in this volume) until a little while after the European invasion and the first entry of Spaniards into the Chachapoyas region (AD 1535).

Interestingly, the other two AMS dates I have obtained on khipu samples also date between late pre-Hispanic and early Colonial times. One sample (UR35/AS70), from a khipu in the Museo Chileno de Arte Precolombino, in Santiago de Chile, produced a calibrated AMS reading of 365 \pm 29 BP, or AD 1538 \pm 66; this khipu was recovered from the site of Playa Miller #6, near Arica, Chile. A khipu sample (without provenance) in Emory University's Carlos Museum [Note 5] yielded a calibrated AMS reading of 336 \pm 36 BP, or AD 1552 \pm 59.

Therefore, the radiocarbon dates from seven khipu from the far northern highlands of Peru to the north coast of Chile yielded dates from the period between late pre-Hispanic to early Colonial times. Were we not to have persistent testimony from Spanish writers from the earliest days following the European invasion of the Andes about the widespread use of khipu in the Inca state, we might be left (from the AMS dates) with the suspicion that khipu were in fact a late development of Inca information technology that became more highly

developed during the colony, rather than an artifact that was of central importance in Inca administrative practice throughout the (brief) life of the Empire.

COLONIAL SOURCES ON KHIPU

Although none of the Spanish chroniclers laid out for us how to read an actual khipu (there is much general commentary on idealized or abstract samples), nonetheless, the colonial chronicles and documents are the best sources of information on the roles, status and manipulation of these devices in Inca administrative practice. Several useful summaries of the colonial testimony have been published to date (e.g., Locke 1923; Quilter and Urton 2002; Urton n.d.). Chroniclers insist that khipu were consulted in relation to a variety of matters of interest to the Inca state, from censuses and tribute records (Acosta 2002: 349–350; Cieza de León 1967: 62, 67; Garcilaso de la Vega 1966: 274–275), to astronomy and calendrics (Guaman Poma 1980), to the keeping of what are often referred to as historical annals (Molina 1916). Both Antonio de la Calancha (1974) and Garcilaso de la Vega (1966) assert that they learned how to read certain types of khipu. These and other sources have been studied closely (e.g., Pärssinen 1992; Quilter and Urton 2002), but the data and recording principles described in these accounts have not yet led to significant breakthroughs in decoding extant khipu samples.

In addition to the various accounts and commentaries on khipu contained in the Spanish chronicles, we have a growing body of so-called khipu transcriptions (Pärssinen and Kiviharju 2004). These are documents written by Spanish scribes in (Spanish) alphabetic script from translations of readings of khipu given by native record keepers in their native Andean languages (especially Quechua and Aymara). While the khipu transcriptions primarily focus on the types of information that were of most immediate, practical interest to Spanish administrators (e.g., census data and both pre-Hispanic and colonial tribute accounts), two features of these transcriptions render such documents of great importance in present-day efforts to understand how information was encoded onto and decoded from both statistical and narrative records.

In the first place, the identities mentioned in these documents (e.g., individual offices and statuses and various types of plants, animals, manufactured products, etc.) were clearly of enduring significance to the Inca record keepers. Many of these same objects and identities are presumably also recorded in some of the extant khipu. Secondly, it has been shown (Murra 1975; Pärssinen 1992) that, while not universal or invariant, the order in which these identities were placed, read and transcribed from samples reflects principles of organization, classification, and precedence that would have had salience in Inca record keeping more generally. Therefore, the khipu transcriptions contain both information and organizational principles that may eventually provide clues for our on-going efforts to decipher Inca statistical and even narrative khipu.

PRESENT-DAY STUDY OF EXTANT KHIPU

Beginning with the work of L. Leland Locke at the American Museum of Natural History (1923), the most significant advances made in decoding khipu information to date have been in terms of the study of the numerical data registered on these devices. It is critical to note here that the three knot types tied into khipu described earlier—figure-eight, long,

and single—were tied into the strings in hierarchical clusters that in many, though not all [Note 6] samples signed quantitative values in the Inca/Quechua decimal place system of numeration. The signing of such values was a central element in the recording of statistical data in many of the Inca khipu (Garcilaso de la Vega 1966; Locke 1923).

The study of the quantitative data recorded on khipu has been the focus of a forty-year program of khipu studies undertaken by Marcia Ascher and Robert Ascher (1997). The Aschers' work is based on their careful study of some 215 samples (see: <http://instruct1.cit.cornell.edu/research/quipu~ascher/>). The corpus of Ascher khipu descriptions forms the basis for all modern analyses of khipu record keeping, including the KDB (although the KDB project has produced descriptions of an additional 133 samples; see the data tables at: <http://khipukamayuk.fas.harvard.edu/datatables.html>).

In addition to their descriptive studies, the Aschers have analyzed a number of important patterns in the organization of numerical data registered on khipu, such as hierarchical categorization, summation and numerical rhythms. The Aschers argue that these features constitute the logical principles at the core of the khipu information system and that, as such, they represent the practical operations at the heart of a complex mathematical agenda, or set of problems, that was the primary motivation for much khipu manipulation and practice (1997: 81, 93, 101, 109, 122). For the Aschers, to penetrate the code of the khipu is to expose the core values and principles of Inca cognition, mathematics and, ultimately, philosophy.

Recently, KDB project personnel have produced studies of khipu focusing primarily on the identification of different types of numerical data that may derive from different record keeping interests of Inca state administrators. Based on study of the khipu samples stored in the KDB, we have identified several heretofore unreported examples of matching khipu, as well as what we term “close matches”—two or more samples with nearly identical numerical information and/or color patterning (Urton 2005). It has been argued that close matches may result from successive, temporally or socially (e.g., from different khipu keepers) distant accountings of such phenomena as censuses or tribute records. We were also able to identify the highly complex accounting hierarchy from Puruchuco. This is a set of seven khipu, distributed into matching pairs (and one triad) of khipu on three hierarchical levels. In this accounting group, sums of data on lower levels are recorded on strings of khipu at higher levels, or, in the reverse direction, larger values on higher levels are subdivided, or partitioned, into smaller values recorded on khipu at lower levels (Urton and Brezine 2005). Such studies are helping define some of the basic procedures of record keeping, including cross-referencing and checks and balances, used in khipu administrative practices.

KHIPU ACCOUNTS AND ACCOUNTING IN PREHISTORY AND HISTORY

The khipu played a central role in Inca administrative practice, as these knotted-string accounts emerged from and gave testimony to the work of organizing, classifying and representing information relating to the composition and distribution of material goods and other resources, including political power, in the Inka state. Despite our understanding of the important role played by these devices in Inkaic administrative practice, we still lack detailed, in-depth knowledge and understanding of khipu semiosis and “reading” procedures. Specifically, one of the key questions facing khipu researchers is what the

Spanish meant when they wrote in their own ink-on-paper records that the *kipukamayuc* “consulted” information recorded on *kipu* in recounting historical and other types of narrative accounts. Was this “consulting” an act of *reading* what essentially was a script, with fully formed grammatical units registered three-dimensionally on the *kipu* strings? Or did the *kipu* function more like a registry of general signifiers evoking classes of objects, actions, places and times that were given more nuanced form and substance by a *kipukamayuc*, who would have brought to the reading of these sketchy notes, or cues, information retained in his memory, as well as a range of creative, discursive practices for producing a narrative appropriate to a given place and perhaps audience? Or was the manner of “consultation” somewhere between the extremes of the continuum of styles from the restricted, literal reading procedure, at one end, to the more open, free-form procedure, at the other? The answers to these questions, which we are unable to provide at the present time, will go a long way toward ultimately determining whether or not the *kipu* recording and information system should be considered a true writing system.

As was argued in numerous works published during the renaissance of anthropological historical studies in the Andes at the end of the last (twentieth) century (e.g., Abercrombie 1998; Julien, 2000; Urton 1990; Wachtel 1977), the control of history was one of the principal sources of power in both late pre-Hispanic and early colonial times in the Andes. In the former period, Inka recordkeepers were engaged daily in collecting, classifying and registering in the *kipus* information vital to the attempt to control and exploit subject populations over the extraordinary swath of land that stretches from what is today Quito to Santiago de Chile. In the early colonial period, many of these same native record keepers and their direct descendants found themselves locked in what can only be described, from the present-day perspective, as a life and death struggle with an alien state built around political institutions, bureaucratic procedures and a religious ideology quite unlike any that had previously existed in the Andes. Intimately related to, underlying, and reinforcing these Spanish colonial institutions, procedures and ideologies was a record keeping system that operated on a glottographic, alphabetic recording principle that was almost assuredly different from anything that had existed in Andean recording technology up to that time.

Accounting and writing systems are directly concerned with the classification, control and representation of information about the world. As history played itself out in the early colonial Andes, the alphabetic script and the political system it supported decidedly won out over the Andean cord- and knot-based recording technology. Just as Andean peoples struggled to create a space for their cord-based representations of self and society in the context of a world ultimately won over by the technology of alphabetic writing and the Hindu-Arabic numeral signs, we are left today with the challenge of reading in and through the accounts produced by means of these same grapheme/numeric traditions, as well as interpreting the archaeological record, information and representations that can help us arrive at an understanding of what was surely one of the most extraordinary recording technologies of the ancient world—the *kipu*.

CONCLUSION

Much remains to be done in the field of *kipu* research. Many samples have yet to be recorded in the standardized format developed by the Aschers (Aschers’ website) and modified and expanded by us (Urton 2003: 56–57). At the time of writing, some fifty

of the recorded samples have yet to be entered into the KDB. Perhaps most importantly, there remain many archives of colonial documents from (and in) Andean nations that researchers have not yet searched for khipu transcriptions. Finally, it should be noted that very exciting ethnographic work is underway in contemporary Andean communities that retain khipu and that persist in the communal use and curation of these extraordinary objects (Salomon 2004; see also earlier work with ethnographic samples by Mackey [1970]). Any one of these avenues of investigation, or, more likely, a combination of all of them, may one day lead to significant breakthroughs in our understanding of how the Inca record keepers coded and decoded—or “read”—information on these remarkable devices.

NOTES

1. “Khipu” is the spelling according to the Peruvian Ministry of Education’s graphophonemic conventions. “Quipu” is the Hispanicized spelling.
2. In khipu studies, it is common practice to provide for each sample studied a two-letter abbreviation, drawn from the name of the investigator (UR=Urton; AS=Ascher), and a unique number to identify each sample. Descriptions of the sample in question were produced by both the Aschers (AS70) and by Urton (UR35).
3. This figure does not take into account some 12 to 15 camelid khipu from Cajamarquilla, on the central coast of Peru, that are in the American Museum of Natural History, in New York; these samples have not been studied to date.
4. The seven C¹⁴ readings from khipu samples presented in the text—five from Laguna de los Cóncores, one (UR35/AS70) from the Museo Chileno de Arte Precolombino (MCHAP), and one from the Carlos Museum—were obtained by the author from the NSF University of Arizona AMS facility. The readings were calibrated using the Calpal online calibration program (18 October 2005).

Lab I.D.	Sample I.D.	DC_13 Value	Years B.P.	Age B.P.
T12818A	CMA373/LC2-002	–26	414+–35	1501+–58
T12819A	CMA419/LC1-048	–21.9	403+–35	1518+–70
T12820	CMA628/LC1-257B	–11.3	419+–36	1479+–38
T12821A	CMA847/LC1-476	–24.5	834+–35	1203+–34
T12822A	CMA479/LC1-108	–22.5	379+–34	1531+–69
AA46921	MCHAP780	–12.1	365+–29	1538+–66
AA64905	Carlos2002.1.118	–24.7	335+–36	1552+–59

5. This sample in the Carlos Museum (#2002.1.118) is actually composed of three separate khipu whose primary cords have been knotted together.
6. About one-third of all khipu do not have their knots tied in decimal-based hierarchical tiers (as in the numerical/statistical khipu). I have referred to these as non-decimal, narrative, and “anomalous” khipu (Urton 2003).

REFERENCES

- Abercrombie, Thomas A., 1998, *Pathways of Memory and Power: Ethnography and History among an Andean People*. University of Wisconsin Press, Madison.
- Acosta, José de, 2002 [1590], *Natural and Moral History of the Indies*. Translated by F. López-Morillas, edited by Jane Mangin. Duke University Press, Durham and London.
- Arellano, Carmen, 1999, Quipu y tocapu. Sistemas de comunicación incas. In *Los Incas. Arte y Símbolos*, edited by Franklin Pease, et al., pp. 215–261. Colección Arte y Tesoros del Perú. Banco de Crédito del Perú, Lima.
- Ascher, Marcia and Robert Ascher, 1997 [1981], *Mathematics of the Inca: Code of the Quipu*. Dover, New York.
- Calancha, Antonio de la, 1974 [1638], *Crónica Moralizada del Orden de San Agustín en el Perú con Sucesos Ejemplares en Esta Monarquía*. Vol. I. Transcription and critical study by Ignacio Prado Pastor. Universidad Nacional Mayor de San Marcos, Lima.
- Cieza de Leon, Pedro de, 1967 [1551], *El Señorío de los Incas*. Instituto de Estudios Peruanos, Lima.

- Cobo, Bernabé, 1983 [1553], *History of the Inca Empire*. Translated and edited by Roland Hamilton. University of Texas Press, Austin.
- Conklin, William J., 1982, The information system of the Middle Horizon quipus. In *Ethnoastronomy and Archaeoastronomy in the American Tropics*, edited by Anthony F. Aveni and Gary Urton, pp. 261–281. Annals of the New York Academy of Sciences, Vol. 385. New York Academy of Sciences, New York.
- , 2002, A khipu information string theory. In *Narrative Threads: Accounting and Recounting in Andean Khipu*, edited by Jeffrey Quilter and Gary Urton, pp. 53–86. University of Texas Press, Austin.
- Cornejo Guerrero, Miguel Antonio, 2000, La nación ischma y la provincia inca de Pachacámac. *Arqueológicas* 24: 149–173.
- D'Altroy, Terence N., 2002, *The Incas*. Basil Blackwell, Malden, MA.
- Garcilaso de la Vega, El Inca, 1666 [1609–1617], *Royal Commentaries of the Incas*. Translated and with an Introduction by Harold V. Livermore. University of Texas Press, Austin.
- Guaman Poma de Ayala, Felipe, 1980 [1615], *El Primer Nueva Corónica y Buen Gobierno*. Critical edition by John V. Murra and Rolena Adorno. Translation and textual analysis by Jorge L. Urioste. 3 Vols. Siglo Veintiuno, Mexico City.
- Guillén, Sonia E., 1999, Arqueología de Emergencia: Inventario, Catalogación y Conservación de los Materiales Arqueológicos de los Mausoleos de la Laguna de los Cóndores. Final report to the Instituto Nacional de Cultura, Lima.
- Jijón y Caamaño, J., 1949, *Maranga: Contribución al Conocimiento de los Aborígenes del Valle del Rimac, Perú*. La Prensa Católica, Quito, Ecuador.
- Julien, Catherine J., 1988, How Inca decimal administration worked. *Ethnohistory* 35 (3): 257–79.
- , 2000, *Reading Inca History*. University of Iowa Press, Iowa City.
- Locke, L., Leland, 1923, *The Ancient Quipu, or Peruvian Knot Record*. American Museum of Natural History, New York.
- Loza, Carmen Beatriz, 1999, Quipus and quipolas at the Museum für Völkerkunde, Berlin. Genesis of a reference collection (1872–1999). *Baessler-Archiv, Neue Folge*, Vol. 47: 39–75.
- Mackey, Carol J., 1970, Knot Records in Ancient and Modern Perú. Ph.D. dissertation. Department of Anthropology, University of California, Berkeley.
- , Hugo Pereyra, Carlos Radicati, Humberto Rodriguez, and Oscar Valverde (eds.), 1990, *Quipu y Yupana: Colección de Escritos*. Consejo Nacional de Ciencia y Tecnología, Lima.
- Molina, Cristóbal de, 1916 [1573], *Relación de las Fábulas y Ritos de los Incas*. Edited by H. H. Urteaga and C.A. Romero. Colección de Libros y Documentos Referentes a la Historia del Perú, Vol. 1. Imprenta y Librería Sanmartí. Lima.
- Murra, John V., 1975, Las etno-categorías de un khipu estatal. In *Formaciones Económicas y Políticas en el Mundo Andino*, by John V. Murra, pp. 243–254. Instituto de Estudios Andinos, Lima.
- Pärssinen, Martti, 1992, *Tawantinsuyu: The Inca State and Its Political Organization*. Societas Historica Finlandiae, Studia Historica 43. Helsinki.
- and Jukka Kiviharju, 2004, *Textos Andinos: Corpus de Textos Khipu Incaicos y Coloniales. Tomo I. Acta Ibero-Americana Fennica*. Instituto Iberoamericano de Finlandia and Departamento de Filología Española I, Facultad de Filología, Universidad Complutense de Madrid, Madrid.
- Pereyra S., Hugo, 1996, Acerca de dos quipus con características numéricas excepcionales. *Bulletin de l'Institut Français d'Etudes Andines* 25 (2): 187–202.
- , 1997, Los quipus con cuerdas entorchadas. In *Arqueología, Antropología e Historia en los Andes: Homenaje a María Rostworowski*, edited by Rafael Varón Gabai and Javier Flores Espinoza, pp. 187–198. Instituto de Estudios Peruanos, Lima.
- , Hugo, 2001, Notas sobre el descubrimiento de la clave numeral de los quipus incaicos. *Boletín del Museo de Arqueología Antropología* 4 (5): 115–123.
- Pizarro, Hernando, 1920 [1533], A los Señores Oydores de la Audiencia Real de Su Magestad. In *Informaciones Sobre el Antiguo Perú*, edited by Horacio H. Urteaga, pp. 16–180. Colección de Libros y Documentos Referentes a la Historia del Perú, 3 (Second Series). Imprenta y Librería Sanmartí, Lima.
- Quilter, Jeffrey and Gary Urton (eds.), 2002, *Narrative Threads: Accounting and Recounting in Andean Khipu*. University of Texas Press, Austin.
- Radicati de Primeglio, Carlos, 1964, *La 'Seriación' como posible Clave para Descifrar los Quipus Extranumerales*. Biblioteca de la Sociedad Peruana de Historia, Serie: Monografías, VI. Universidad Nacional Mayor de San Marcos, Lima.
- , 1979, *El Sistema Contable de los Incas*. Librería Studium, Lima.

- Salomon, Frank, 2004, *The Cord Keepers: Khipus and Cultural Life in a Peruvian Village*. Duke University Press, Durham and London.
- Shady, Ruth, Joaquín Narváez, and Sonia López, 2000, La antigüedad del uso del quipu como escritura: las evidencias de la Huaca San Marcos. *Boletín del Museo de Arqueología y Antropología* [Año 3] 10: 2–23. Universidad Nacional Mayor de San Marcos, Lima.
- Urton, Gary, 1990, *The History of a Myth: Pacariqtambo and the Origin of the Inkas*. The University of Texas Press, Austin.
- , 1994, A new twist in an old yarn: variation in knot directionality in the Inka khipus. *Baessler-Archiv Neue Folge*, Band XLII: 271–305.
- , 1998, From knots to narratives: reconstructing the art of historical record-keeping in the Andes from Spanish transcriptions of Inka khipus. *Ethnohistory* 45 (3): 409–438.
- , 2001, A calendrical and demographic tomb text from northern Peru. *Latin American Antiquity* 12 (2): 127–147.
- , 2002, An overview of Spanish colonial commentary on Andean knotted-string records. In *Narrative Threads: Accounting and Recounting in Andean Khipu*, edited by Jeffrey Quilter and Gary Urton, pp. 3–25. University of Texas Press, Austin.
- , 2003, *Signs of the Inka Khipu: Binary Coding in the Andean Knotted-String Records*. The University of Texas Press, Austin.
- , 2005, Khipu archives: duplicate accounts and identity labels in the Inka knotted string records. *Latin American Antiquity* 16 (2): 147–167.
- , n.d., A history of studies of Andean knotted string records. In *Guide to Documentary Sources for Andean Art History and Archaeology*, edited by Joanne Pillsbury. Center for Advanced Study in the Visual Arts, Washington, D.C. (in press).
- and Carrie J. Brezine, 2005, Khipu accounting in ancient Peru. *Science* 309: 1065–1067.
- Villacorta Ostolaza, L.F. (ed.), 2005, *Puruchuco y la Sociedad de Lima: Un Homenaje a Arturo Jiménez Borja*. Consejo Nacional de Ciencia y Tecnología, Lima.
- von Hagen, Adriana, 2000, Nueva iconografía Chachapoyas. *Iconos: Revista Peruana de Conservación, Arte y Arqueología* 4: 8–17. Lima.
- Wachtel, Nathan, 1977, *The Vision of the Vanquished*. Translated by Ben and Sian Reynolds. The Harvester Press Ltd., Hassocks, Sussex.
- Zuidema, R. Tom, 1989, A quipu calendar from Ica, Peru, with a comparison to the ceque calendar from Cuzco. In *World Archaeoastronomy*, edited by Anthony F. Aveni, pp. 341–51. Cambridge University Press, Cambridge.

Experiencing Inca Domination in Northwestern Argentina and the Southern Andes

FÉLIX A. ACUTO

INTRODUCTION

Often unacknowledged (see Stanish 2001), there is a long tradition of studies about Inca domination in the Andean southlands of northern Chile, southern Bolivia, and northwest Argentina. Rodolfo Raffino's work constitutes, no doubt, the cornerstone of this academic field (see especially Raffino 1981, 1988, 1993), as well as that of Alberto Rex González (1982, 1983) and Ana M. Lorandi's (1980, 1983, 1988) ethnohistorical investigations. Other outstanding archaeological and ethnohistorical projects conducted at the southern extreme of the Inca Empire include the research of Bárcena (2001), Uribe (2000), Alconini (2004), Meyers and Ulbert (1997), and Nielsen (1998), among others.

Andean scholars often perceive northwestern Argentina in particular, and the South Andes in general, as a marginal area of Tawantinsuyu (literally, "land of the four quarters", the Inca name for their Empire) and, therefore, that Inca domination had a shallow impact on local societies. There are a number of reasons for this perception. First, the South Andes are far from the core of the Empire. Second, Inca architecture and material objects in this part of Tawantinsuyu are not as abundant as in the Central Andes, nor do they exhibit, in comparison, high quality and great investment of labor. Third, toward the end of Tawantinsuyu's history, the Incas were clearly more interested in the northern frontier than in the southlands. Fourth, it is generally believed that Inca occupation only lasted a few years in this southern corner of Tawantinsuyu, from approximately AD 1470 until the Spanish conquest [Note 1].

Contrary to these ideas, I claim that Inca domination profoundly influenced the indigenous societies of the South Andes. Through the analysis of Inca domination from the point of view of the colonized, and how subjects experienced this new political

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

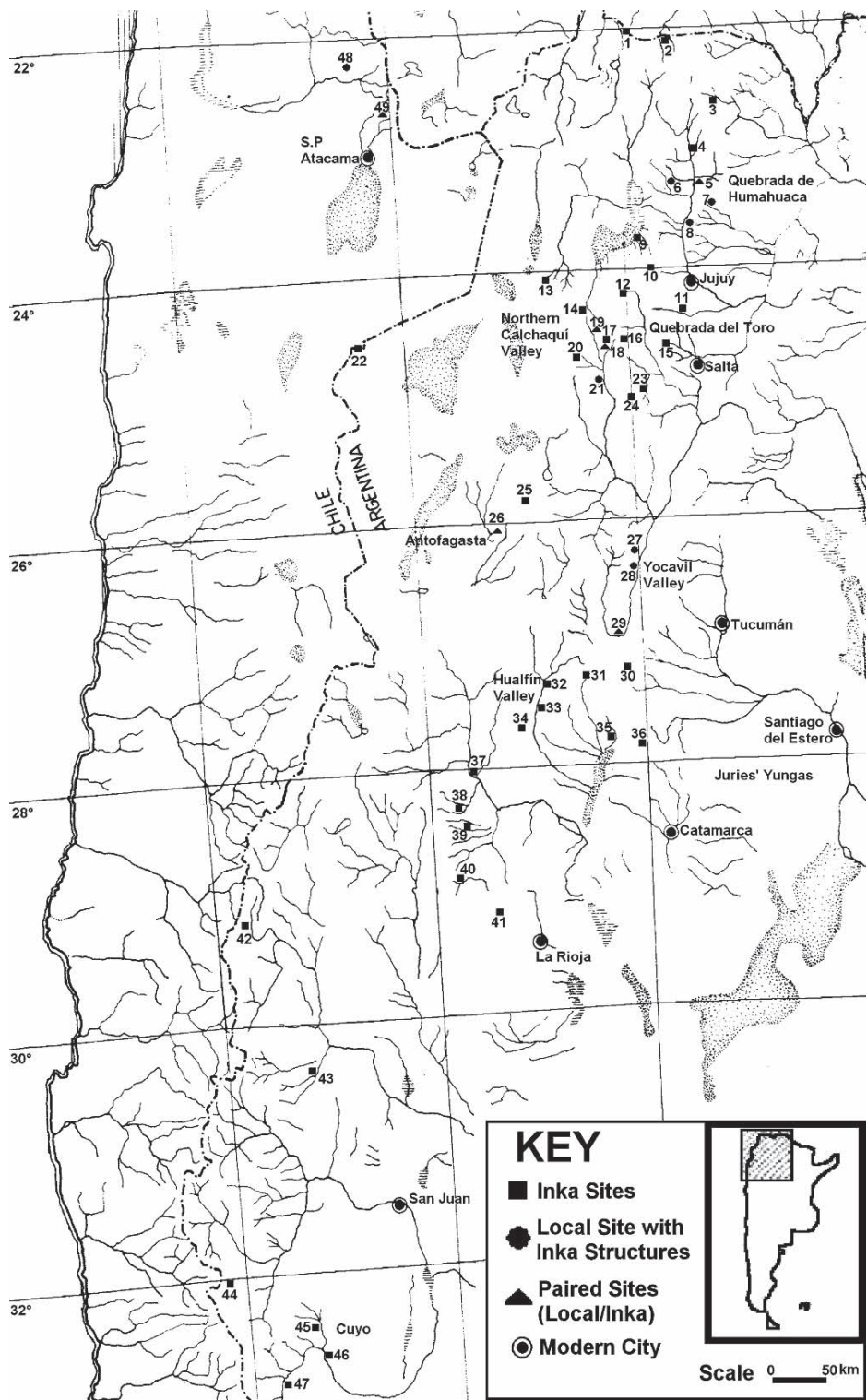
context, I demonstrate the momentous impact Inca conquest had on native societies' social life. First, I explore how the Inca conquest altered social dynamics among communities and created new social relations between different groups. While some native communities were affected by and marginalized from these relations, others benefited from Inca occupation. Then I move on to examine the transformations that Inca domination promoted in subject communities' social and political structures. Next, I consider the ways indigenous people may have experienced Incaic places. I claim that this constituted a dramatic experience that shaped the identity of the colonized, as well as the identities of those whom the Incas sent as their representatives. In the final section I assess the aftermath of the Incas, demonstrating that Inca domination left an indelible mark on South Andean communities' social practices and memory.

NEW SOCIAL RELATIONS

Archaeological evidence shows that the Incas did not establish the same type of relationship with every subject community of the South Andes (and see Menzel 1959). Archaeologists usually find, in any given area, both indigenous sites that contain fine Inca architecture, pottery, and other objects, and sites—even some outstanding native settlements inhabited during the Inca period—with no traces of imperial material culture. This indicates that the imperial rulers chose certain communities over others, with whom they established close and favored ties. In other words, the Incas negotiated with and incorporated certain groups into the imperial realm, while marginalizing others (perhaps because they resisted incorporation into the Empire). Some people, thus, clearly benefited from Inca conquest, while other subjects only had the burden of obligations to Tawantinsuyu, without enjoying visible profits from the relationship.

Perhaps, those communities that readily accepted Inca offers of subordination were those who acquired the best positions. For these people and communities, belonging to the imperial realm implied participating in imperial and trans-regional social practices and rituals (such as the qhapaq hucha that began in Cuzco and expanded to the provinces: see McEwan and van de Guchte 1992; see Chapter 40 in this volume); obtaining power over neighbor communities; and gaining access to resources, valuable new material goods, and new forms of knowledge. Some people took advantage of this novel political opportunity and improved their situation. However, strengthening ties with the foreign power probably damaged traditional relationships with peer communities. For instance, ethnohistorical accounts explain that the communities that inhabited the Yocavil Valley (Figure 42.1), in northwestern Argentina, strongly, and apparently steadily, contested

Figure 42.1. Map of Northwestern Argentina showing location of Inca sites. 1. Calahoyo, 2. Toroara, 3. Titiconte, 4. Coctaca, 5. Yacoraite, 6. Los Amarillos, 7. La Huerta, 8. Pucará de Tilcara, 9. El Moreno, 10. Nevado de Chañi, 11. Agua Hedionda, 12. Punta Ciénaga, 13. Nevado de Quehwar, 14. Nevado de Acay, 15. Inchuasi, 16. Corral Blanco, 17. Potrero de Payogasta, 18. Cortaderas, 19. Esquina Azul, 20. Nevados de Cachi, 21. La Paya/Guitián, 22. Llullaillaco, 23. Agua de los Loros, 24. Tin Tin, 25. Cerro Galán, 26. La Alumbra-Coyparcito, 27. Quilmes, 28. Fuerte Quemado, 29. Cerro Mendocino/Punta de Balasto, 30. Nevado de Aconquija, 31. Ingenio Arenal, 32. Hualfán, 33. Quillay, 34. Shincal, 35. Potrero-Chaquiago, 36. Pucará del Aconquija, 37. Watungasta, 38. Costa de Reyes, 39. Tambería de los Cazadores, 40. Pampa Real, 41. Tambería del Inca, 42. Cerro El Toro, 43. Tocota, 44. Cerro Mercedario, 45. Tambillos, 46. Tambillitos, 47. Ranchillos, 48. Turi, 49. Catarpe. (Félix Acuto)



Inca conquest and domination (Lorandi and Boixadós 1987–88). In response to this situation, the Incas decided to bring foreign groups or *mitmaqkuna* into the region to work in imperial projects. It is interesting to note that Inca sites in this region have Inca ceramics alongside Chicha pottery (an ethnic group from southern Bolivia and the northern tip of Argentina) and ceramics of Juríes groups from the yungas of Tucumán (outside the eastern border of the empire), but almost no local pottery. Archaeological analysis demonstrated that this foreign pottery was not imported but was actually produced within some of these sites (Cremonte 1994). Ethnohistorical information also suggests that the Incas employed the Chichas and these eastern people as imperial labor and perhaps as low-level administrators. These relocated groups inhabited Inca settlements, consumed Inca goods, had favored access to lands and probably other resources, and participated in imperial ceremonies and activities. Southern Calchaquí communities, on the other hand, were virtually left out of all this.

This example shows that, as in other parts of Tawantinsuyu, the Incas introduced foreign *mitmaqkuna* colonists into the South Andes. There were many reasons for this imperial policy of resettlement: to break up recalcitrant populations, improve productivity in key areas, strengthen strategic locations with soldiers, or introduce an imperial administrative elite. But whatever the Inca reason, foreign groups profoundly disrupted the life of local people. In many cases, indigenous communities lost lands, access to resources, and power to these *mitmaqkuna*.

THE CREATION OF A NEW AGENCY

The Late Period (AD 900–1400/1470) in the South Andes was a time of social and political struggles, tensions, and contradictions: struggles for power and control over land, labor, and other resources among competing communities as well as among competing households or factions within the same community; tensions and contradictions in all the communities between the preservation of communal integration versus increase in social inequality and stratification (see Chapter 30 in this volume). The prevalence of sites located in high, defensive places implies that friction between neighboring communities was common.

No single polity was able to subdue or dominate a large region. On the contrary, archaeological and ethnohistorical evidence shows that political fragmentation and competition seem to have been the rule during the Late Period. Even within each community, political power was not totally consolidated and institutionalized. Many of the larger settlements of this period have no signs of centralized political institutions (such as formalized public spaces with administrative buildings and elite residences) and surplus appropriation (concentrated and restricted storage facilities). Rather, in many sites, the presence of more than one public area, as well as the occurrence of similar rituals and feasting activities in different parts of the same site, suggest that competition among households or other internal factions was the rule.

Economic stratification, social inequality, and differences in power between individuals and groups were not institutionalized in pre-Inca times. The archaeological record shows no sign of significant differences among dwellings in terms of their size, quality, and location within the site (Figure 42.2; see also Chapter 30 in this volume). Moreover, in the majority of the sites material objects are evenly distributed. In addition, there are no clear-cut differences among residential compounds with respect to goods consumed, access to resources, tools of production, and activities undertaken.



Figure 42.2. Loma Rica de Shiquimil site, Yocavil Valley area. It is a Late Period indigenous site. (Redrawn from Raffino 1988: fig. 4.18).

Towns and villages of the Late Period were not divided into elite and commoner areas. Rather, communities displayed a strong degree of integration, where walls, paths, spaces, and a similar material culture were shared, together with activities and experiences. Indeed, the material homogeneity of Late Period places could have created a sense of integration, a perception of everybody as equal and the same, or part of one unity.

Even though historical accounts recognize the existence of chiefs (at least during the early Colonial Period), chiefs' power was based on their skills in time of war and their ability as leaders and negotiators, but it was ephemeral and temporary and did not necessarily entail material benefits or significant control over labor and resources. I believe that a similar situation characterized the Late Period.

The Incas fostered a dramatic change in the political structures of South Andean societies. They created a clearly stratified social pyramid with themselves at the top. The polities that contended for power, land, labor and other resources before the Incas were now integrated within a single political unit: Tawantinsuyu. Power, which during the Late Period was scattered among competing groups, communities and settlements, became centralized in the hands of the Incas, and reorganization of the social landscape reinforced this. Before the Inca conquest no local town had become the political center of a large region; during the imperial domination a single Inca settlement centralized power and ruled over the rest.

Inca domination also impacted political organization and daily experience in many local communities. Archaeological evidence shows that some settlements underwent remarkable transformations with the onset of Inca conquest. Parts of these sites have intrusive Inca-style residential compounds and administrative/ceremonial buildings, whose construction required eliminating former indigenous structures (Figures 42.3, 42.4). These Incaic precincts are also distinguished from the local site area by higher concentrations of imperial objects, storage facilities and, in some cases, richly equipped burials. Examples of this are La Huerta and Pucará de Tilcara in the Quebrada de Humahuaca, La Paya/Guitián in the northern Calchaquí Valley, Quilmes and Fuerte Quemado in the Yocavil Valley (all in northwestern Argentina), and Turi in the Atacama region in Chile (Figure 42.1). This evidence suggests that the Incas either settled mitmaqkuna in some local towns, who became

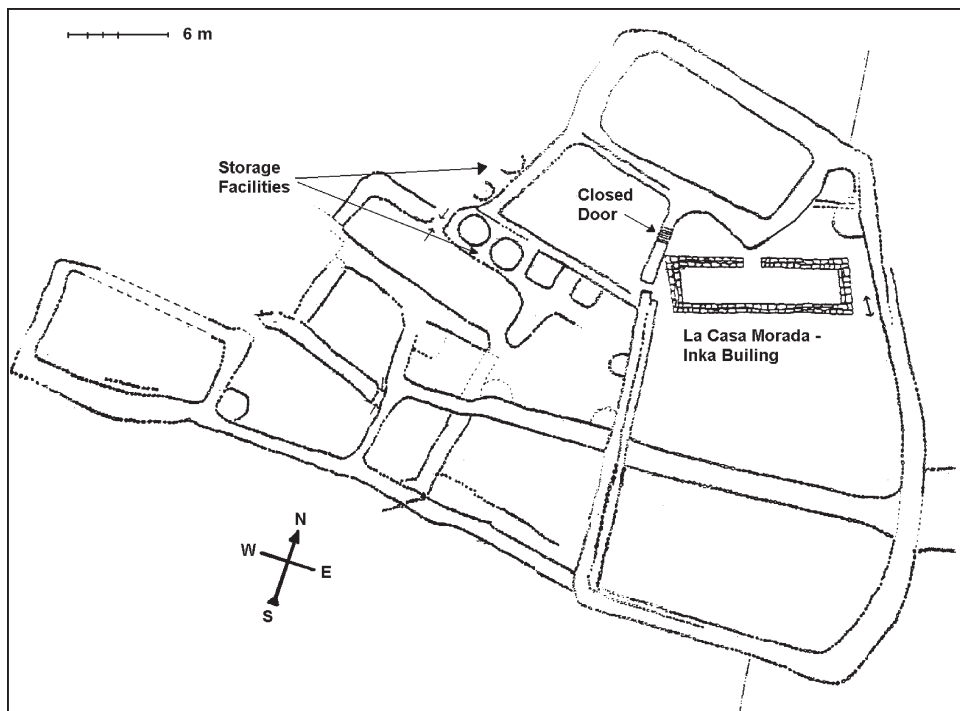


Figure 42.3. La Paya/Guitián site, northern Calchaquí Valley. It is a Late Period indigenous site transformed by the Incas. (Redrawn from González and Díaz 1992).



Figure 42.4. Turi site, Atacama Region. It is a Late Period indigenous site transformed by the Incas. The area of the intrusive Inca plaza and the height of the intrusive Inca kallanka clearly stand out. (Redrawn from Cornejo 2000).

elites and rulers of the communities, or that they raised the status and power of some local households. A bond between these special people and the empire elevated their status and provided them with knowledge for conducting Inca rituals, with access to high-quality material objects, and to prestige goods. Inca material culture seems to have empowered these chosen people. Their position, however, could have had a negative aspect; it could have alienated them from the rest of the community, including the social and economic networks and communal solidarity that existed before the Incas. Social rejection could have been one of the unintended consequences of these new forms of praxis promoted by the Incas.

The creation of this new and materially privileged social stratum, sponsored and protected by the Incas, promoted the centralization of power and the institutionalization of social inequality and stratification (something that indigenous societies had not quite accomplished before the Incas). Obviously it altered many facets of vernacular social life. Among the aspects I find particularly intriguing is the transformation of some individuals' agency, and consequently of indigenous notions of agency [Note 2], and the alteration of local settlements' sense of place due to the fragmentation that these particular communities experienced after Inca intervention.

Tawantinsuyu promoted the creation of a hitherto non-existent type of agent, who acquired prestige and power due to his/her association with the dominant Inca conquerors. With Inca domination, some inhabitants of indigenous settlements acquired new knowledge, more power, and a novel and greater potential for action than the rest. They conducted Inca rituals within indigenous places, enjoyed and displayed conspicuous prestige goods, manipulated resources, and made decisions that affected the life of the rest of the community. Their room for action grew wider and involved more possibilities and a greater autonomy than what native social structure had previously allowed. In this new political context, native people realized that other courses of action were possible.

The sense of solidarity and communal integration experienced in pre-Inca settlements became fragmented after Inca intervention. In these cases, people no longer lived in a place of material homogeneity, but instead they began to experience a divided community, where some individuals inhabited distinctive houses, employed fancy Inca-style objects, and carried out different activities than the rest. The Incas created a sense of social stratification and inequality.

INDIGENOUS EXPERIENCES WITHIN INCA SETTLEMENTS

Inca domination produced new spaces in the South Andes that offered radically new experiences to the inhabitants of this part of Tawantinsuyu. Whereas many indigenous people had experienced and perceived a sense of communal integration and social openness in their settlements, the spatial design and materiality of Inca centers engendered a sense of social stratification, differences in power, and control of movement and senses.

One of the paramount features of most local sites is the conglomeration of residential structures, one next to the other, constituting a cellular or beehive-like pattern (see Chapter 30 in this volume) (Figures 42.2, 42.4). Late Period sites do not seem to have followed a formal plan, but instead grew by the accretion of domestic buildings. These settlements did not develop around a special building or a central public space. The majority of these sites have no large public spaces but rather several small and disorderly public spaces. Residential compounds are the basic building block of these crowded sites. Archaeological evidence

shows that most of the activities undertaken in the settlements took place inside residential enclosures (cooking, eating, rest, craft production, funerary practices, ritual related to ancestor worship, and social reproduction in general). Indeed, different spheres of social life seem to have been profoundly entangled within dwellings.

Domestic compounds are generally semi-subterranean with walls made of stone or a combination of stone foundations and adobe superstructure. Most buildings share walls, halls, and passages. There are even cases of domestic compounds sharing spaces with neighboring dwellings, especially multi-activity patios. Wider walls along the edges of residential compounds were used as paths, permitting pedestrian circulation throughout the settlements. But significantly, walking about one of these crowded settlements meant passing from one residence to another. Consequently, the clustered layout of indigenous sites encouraged the permanent interaction of inhabitants. Pathways crisscrossed sites passing in-between and above its buildings. Permeable architecture and elevated passageways allowed people to see, hear, and smell what other households and individuals did. Apparently, there were no material restrictions to physical movement throughout the settlement. Spatial organization did not endorse privacy, rather it fostered interaction. Circulation seems to have been a major way of socialization and obtaining intimate knowledge of one's own community. People were able to see what others did, especially in the open patios and in the large unroofed rooms where the majority of the daily activities took place (see Chapter 30 in this volume). Many activities were thus exposed to the eye of the community. In general, in these towns and villages, people did not encounter restricted areas of the settlement—buildings set apart from the rest, or the material structures of a political elite. On the contrary, everybody carried out similar tasks in similar houses, using similar goods and iconography. I infer that in most pre-Incaic settlements, people experienced a materially homogeneous landscape of residential compounds that should have promoted a sense of place characterized by feelings of cultural homogeneity and communal integration, sharing, and lack of social differentiation.

In selected areas of the South Andes the Incas created a landscape of their own, significantly distanced from the orbit of local communities (Acuto 1999, 2004; see also Williams and D'Altroy 1998). In Inca landscapes the empire installed a series of settlements that became new centers of political and economic activities, and important producers of cultural and ritual practices. According to archaeological and ethnohistorical information, representatives of the empire, *mitmaquna* colonists, and at least at times, native people fulfilling imperial *mit'a* (corvée labor tax), resided in these Inca centers. There were also a number of local visitors who came to Inca settlements for special occasions.

In contrast to the enmeshed structuring of architecture and activities at local sites, Inca settlements exhibit a tidy spatial order where activities and functions were separated into different areas, such as residential areas, storage facilities, workshops, public spaces or plazas, administrative buildings, military structures, and *mit'a* workers or local people's residences (Figures 42.5, 42.6). This kind of clear functional division of space occurs at the Inca sites of Shincal, Hualfin, Watungasta, Potrero Chaquiago, Potrero de Payogasta, and Cortaderas in northwestern Argentina, Catarpe in the Atacama Region of Chile, and Omaporco and Chuquiago in the Potosí altiplano in southern Bolivia, among others. Every Inca site has a clearly emphasized "architecture of power" (Gasparini and Margolies 1980), that most local sites lack; a public/administrative area composed of a large walled plaza (which is the gravitational center or axis mundi of Inca settlements' spatial design), an *ushnu* platform [Note 3], one or more *kallanka* [Note 4], and other state-oriented buildings (Figures 42.5, 42.6). All these buildings, as well as Inca style dwellings, exhibit outstanding

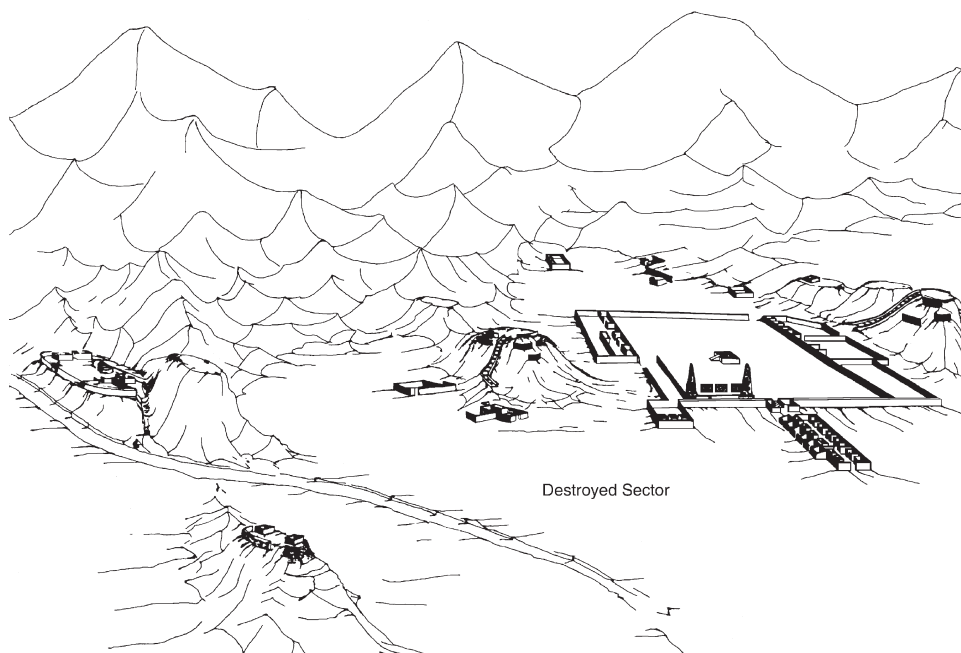


Figure 42.5. The Inca site of Shincal, Hualfín Valley region, with a clear functional division of space. The creation of a sense of separateness between functional spaces and social spaces was a priority at Inca locations in northwestern Argentina. The ushnu is massive according to local standards. (Courtesy of Dr. Rodolfo Raffino).

masonry. In addition, Inca buildings stand out due to their impressive dimensions. In general, there is no local antecedent of such fine masonry and large architecture. No indigenous construction reached the size and mass of Inca architecture. Although most of the South Andes lacks imperial architecture as impressive as Central Andean constructions, Inca buildings were still imposing.

Inca sites' internal pathways do not wind among and through residences, permitting access to every building. Areas are separated and in some cases not even connected. Inca architecture is not semi-subterranean and hence pathways do not pass above buildings, but between compounds. Walls are tall and doors narrow, inhibiting the gaze. Many enclosures have only one or a few doors. Inca buildings do not generally share walls but are usually stand-alone structures [Note 5]; this plus dense masonry traps sounds and odors within.

Considering all these features of Inca sites, it seems that visiting or residing in an Inca settlement should have entailed a conspicuously new and different experience for South Andean actors. Even the most basic and taken-for-granted material aspects of indigenous settlements were absent at Inca places. Inca settlements of the South Andes materialized a different spatiality of social stratification, centrality, monumentality, partition, repetition, privacy, surveillance, and the control of sight and motion.

First, in imperial places people experienced centralized and institutionalized political, economic, and ideological power embodied in the massive administrative/public buildings, storage facilities, and military structures—a vertical power greater than any local chief had ever achieved.

Second, Inca settlement layouts embodied social stratification and inequality, emphasized by separating Inca and non-Inca spheres. In Inca centers such as Cortaderas, Shincal,

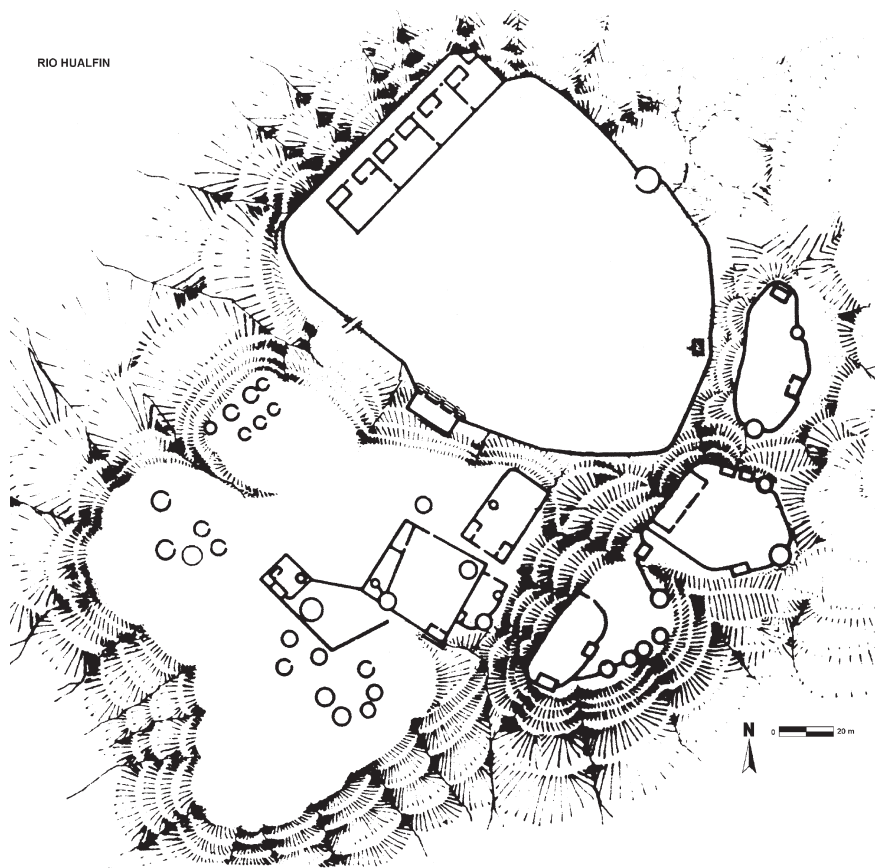


Figure 42.6. The Inca site of Hualfín, Hualfín Valley region, with a clear functional division of space. The creation of a sense of separateness between functional spaces and social spaces was a priority at Inca locations in northwestern Argentina. (Courtesy of Dr. Rodolfo Raffino).

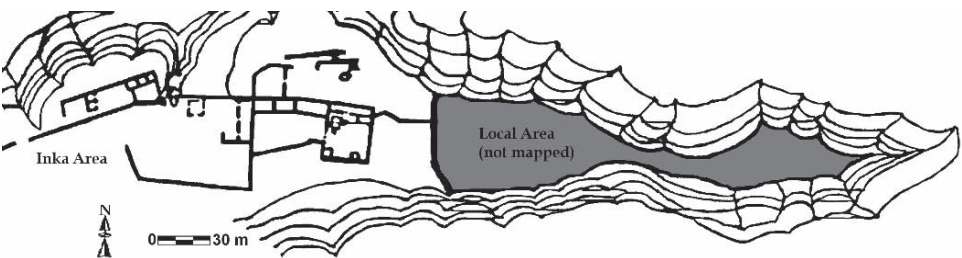


Figure 42.7. Chagua site, Quebrada de Talina, southern Bolivia. The Inca area was clearly set apart from the area occupied by resettled local people. (Redrawn from Raffino 1993: 188).

and La Huerta in Argentina, and Chagua (Figure 42.7) and Chipihuayco in the Quebrada de Talina in southern Bolivia (Raffino 1993), the Inca area was clearly set apart from the area occupied by resettled local people. Furthermore, while the representatives of Tawantinsuyu held political, ritual, and state-oriented economic activities in their part of the settlements,

they excluded subjects from many of these tasks, assigning them instead domestic activities and low-prestige tasks, such as staple production.

In other cases, Tawantinsuyu stressed the hierarchical difference between colonizers and the colonized by placing a major imperial settlement next to an earlier indigenous settlement [Note 6]. Through this policy the Incas created settlements with two highly distinct neighborhoods [Note 7], enhancing distinctions between rulers and subjects. The tidiness, massiveness, and symmetry of the Incaic built environment contrasted starkly with disorderly indigenous spatiality, underlining differences in order, power, and worldview (Figure 42.4). In some circumstances these Inca settlements were located next to a pre-Inca fortress or pukara, emphasizing in these cases the separation between conquerors and those who were defeated (Figure 42.8).

Through manipulation of social space the imperial rulers created a sense of membership and exclusion. In imperial centers local subjects probably experienced a profound sense of inequality, fragmentation, and alienation. The situation was completely different for the Incas or their representatives. The space and materiality of Inca centers enhanced the power of colonizers. Social status was inscribed in the built environment and expressed in the resources consumed, the knowledge acquired, the type of relations promoted, and the practices individuals of each social stratum performed. In summary, whatever feeling of unity existed among communities at indigenous settlements was absent at Inca centers, replaced by a sense of distinction, and that groups that did not belong together.

Third, ritual took center stage in Inca settlements; Coben (2006) has written eloquently and incisively on this, in his study of the roles Inca “ritual theater” fulfilled in constituting, extending and manipulating political power. The centrality, formality, and dimensions of Inca plazas (Figures 42.5, 42.6) show the weight that ritual practices and the diffusion of imperial cosmology had for the Incas. Inca centers constituted a choreographic environment (and see Coben 2006). According to some scholars, many of the most important Inca sites were locales for ritual and spectacle rather than places for habitation or productive activities (von Hagen and Morris 1998; see especially Coben 2006: 227 on the “replication of an idealized city and cosmological center across the Inka empire and the role of these replicas as sacral theaters”). Contrary to indigenous spatiality, Inca plazas were designed for assembly of a large body of people. Plazas at Shincal, Hualfin, Watungasta, Turi, Omaporco, or Nevados del Aconquija, among others, had no local parallel. Inca plazas and ritual buildings occupied a large percentage of the total area of the settlements. In local towns and villages, on the other hand, people experienced the rhythm of daily routines.

Fourth, the sheer size of Inca architecture would have been entirely novel for indigenous observers. Inca settlements included tall, large, solid, and more durable stone buildings, built to last. The most prominent example of this comes from Turi, where the area of the intrusive Inca plaza and the height of the intrusive Inca kallanka clearly stand out (Cornejo 2000) (Figure 42.4). Other examples of large-scale construction include the kallanka at Chuquiago and Omaporco (Raffino 1993), the kallanka-plaza-kancha enclosure at Shincal and Hualfín (Farrington 1999; Raffino 1981, 1988) (Figures 42.5, 42.6), the dual plaza at Watungasta (Raffino 1993–98), the Inca fortress at Cortaderas (Acuto 2004), and the retaining wall under the Inca plaza at Nevado del Aconquija (Hyslop and Schobinger 1991). The ushnu studied by Raffino at Shincal is also massive according to local standards (Raffino et al. 1997).

The semi-subterranean, expedient nature of indigenous buildings made Inca architecture impressive. The monumentality and elevation of an Inca town probably dazzled

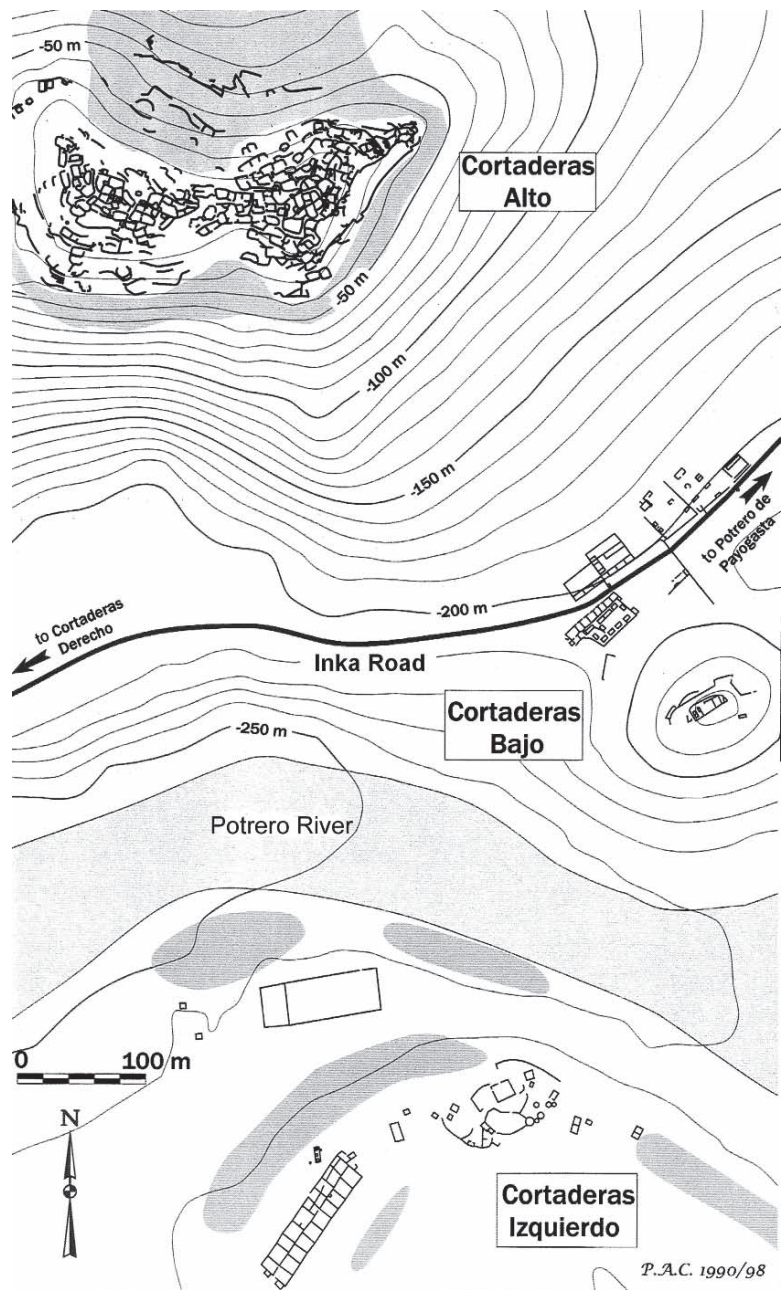


Figure 42.8. Cortaderas, northern Calchaquí Valley. Cortaderas Alto is a local stronghold abandoned after the Inca conquest; Cortaderas Bajo and Cortaderas Izquierdo are the Inca areas of the site; Cortaderas Derecho is an indigenous village occupied by resettled local households and located 1 km across the river from Cortaderas Bajo.

indigenous people, who experienced a level of construction beyond the human scale. The design of circulation in the different kinds of settlement helped to emphasize imperial architecture's scale. In Inca settlements, people were never above buildings but dwarfed within a world of walls and enclosed spaces.

Inca buildings, therefore, transmitted ideas about the overarching force ruling the region. By association, through their built environments the Incas ideologically presented themselves as significantly greater than anything their subjects from the South Andes had hitherto known or experienced. Moreover, imperial architecture's durability suggested a connection between time and the built environment absent in expedient indigenous architecture. Through this ideological assertion made through massive architecture, the colonizers represented themselves as a powerful force that defied time and that had arrived in the region to stay. This aspect of Inca buildings may have been very important to the Inca builders as well. These buildings had a temporal dimension expressing permanence and longevity, a longevity that outlasts human life affirming the power into the future.

Finally, those who visited or resided in these Inca centers experienced an overwhelming sense of surveillance and control. Circulation within Inca centers was restricted. Movement was directed, with many complex and multi-building enclosures, including some large plazas, having only one door (see Turi's plaza: Figure 42.4; Hualfín's plaza: Figure 42.6; the Cortaderas Bajo kancha: Figures 42.8, 42.9). Moreover, tall stone walls, low paths of imperial buildings, as well as the great frequency of roofed structures (see for instance Gifford 2003: 242) created dark interiors, restricting the visitor's gaze. The separation between Inca and non-Inca areas of the settlement, for instance in Chagua (Figure 42.7), Chipihuayco, and Cortaderas (Figure 42.8), also favored the privatization of Inca activities. Distance and topography limited visual access to imperial precincts of settlements from places where indigenous people resided. Furthermore, the Incas arranged their centers to promote specific gazes that dramatized the new political situation—the power of the empire over indigenous subjects as well as nature (see Gifford and Acuto 2002). Buildings were designed with views of other imperial constructions, of imperial landscapes, and of snowy mountaintops or other native shrines ritually and materially appropriated by the Incas.

I believe that by means of their principal centers the Incas conducted a political economy of the senses, or the political and ideological manipulation of experience, for their

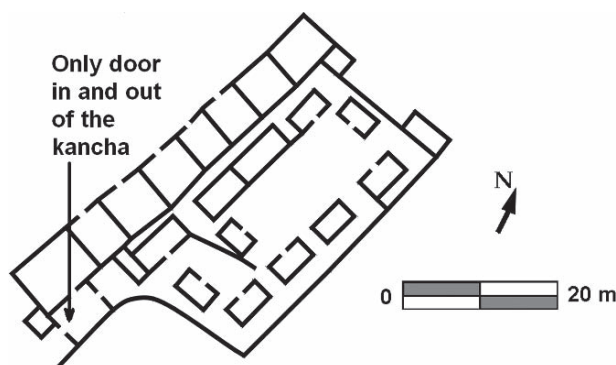


Figure 42.9. Inca kancha at Cortaderas Bajo, northern Calchaquí Valley. (Félix Acuto)

own benefit. They promoted certain ways of circulation and gaze (and possibly hearing), while restricting others, creating a new perception of social order. The experiences and perceptions these spatial layouts attempted to produce reified, and naturalized the dominance of the Incas and the subaltern status of local people.

REMEMBERING TAWANTINSUYU

It is important to consider the aftermath of the Inca Period and the unintended effects Inca colonization produced on the cultural practices of the colonized. Inca colonization was not a historical event that passed unnoticed without leaving marks in the South Andes. On the contrary, it affected the social life of those whom the Incas ruled. The Valles Calchaquíes (Yocavil and middle and northern Calchaquí Valleys) in northwestern Argentina (Figure 42.1) exemplify the argument I am making. In this region, people still remembered Tawantinsuyu during colonial times; there were narratives and a collective memory of the Inca past. Furthermore, subject communities continued conducting rituals in old Inca spaces, and using Inca objects. Despite resistance to Inca domination among many native populations, in a different historical context, and facing the consequences of Spanish conquest, Tawantinsuyu became a suitable utopia.

For more than 120 years native communities of the Calchaquí Valley resisted and repelled the Spanish conquerors. Towards the mid-seventeenth century, Pedro Bohorques, an adventuresome Spaniard, arrived in this rebellious valley. He managed to convince natives that he descended from Inca nobility, and that he was the actual grandson of Atahualpa, the last Inca emperor. He was received in full honor and treated as the Inca himself; native leaders subordinated themselves to Bohorques' leadership. Bohorques managed to place himself above every chief, and under his leadership native communities negotiated with and fought the Colonial government. Bohorques' utopia was to restore Tawantinsuyu in the Calchaquí Region. Although historical accounts say that Calchaquí communities had fiercely resisted Inca conquest, Bohorques seems to have based his power on a vernacular collective memory that in a certain way vindicated Tawantinsuyu.

He entered the region helped by his relationship with the Paciocas, an ethnic group that had been *mitmaquna* of the Incas, brought from Canas, in southern Cuzco. It seems that Bohorques learned about these *mitmaquna* from the original community that still resided in Canas. The Paciocas, enthusiastic about Bohorques' arrival and plans, introduced him to the other groups of the Calchaquí Region. Perhaps, they saw in Bohorques an opportunity to re-gain the privileges they had during Inca times (Lorandi 1997: 239). Not only the Paciocas but all ethnic groups were attracted by this wily Spaniard who claimed noble Inca descent.

Calchaquí people and their leaders rapidly embraced this 'false' Inca. Perhaps they were becoming aware that Spanish authorities were more determined than ever to terminate the rebellion, or perhaps they realized that their own political differences were tearing them apart. Whatever the reason, it is important to emphasize that never before had the many polities of the region been united in common leadership [Note 8]. Bohorques, usurping Inca prestige, obtained what no indigenous chief had accomplished: bringing the Calchaquí communities together.

Calchaquí groups responded to the Inca call. Even communities from outside this region came to the Valles Calchaquíes to support and join the new Inca (Lorandi 1997: 273). Tawantinsuyu still meant something to Calchaquí people; at least it represented a reason to

assemble and fight. The Inca Empire was part of their memory and narratives, with Inca times remembered as better than the new oppression. Indeed, Spanish oppression created a utopia of the Inca past (Lorandi 1997) that united Calchaquí communities against the Spaniards.

The Incas also seem to have influenced indigenous ritual practices. For the last few years, Rodolfo Raffino and his team have been conducting an archaeological project at Shincal, one of the major Inca sites of the South Andes. One of the main characteristics of the site is its large plaza and ushnu (Figure 42.5). Archaeological excavations about the big ushnu have discovered evidence of two clearly differentiated events of feasting and offering: in Inca times and in the first half of the seventeenth century during the Colonial era (Raffino et al. 1997). Furthermore, the two archaeological events are similar in contents (both have animal bones, seeds from cultivated plants, pottery, personal adornments, and human teeth and bones), perhaps implying that ritual activities in the two periods were significantly similar as well.

The consumption of European cattle and the deposition of European artifacts characterized the second event. According to historical information, Shincal was abandoned once Tawantinsuyu collapsed, to be re-occupied later by troops of the indigenous confederation that rebelled against the Spaniards during the “Gran Alzamiento,” right before Bohorques’ arrival in the region. Raffino et al. (1997) argue that, as in Inca times, native communities used this emotion-laden structure to enact ceremonies, perhaps to seal alliances, empower individuals or legitimize polities. This example shows us that after the collapse of Tawantinsuyu, indigenous communities kept employing Inca buildings and rituals as sources of power.

Although there were probably some variations in their form and content, Inca ways were still important for these communities in the Colonial era. They built upon practices learned during Inca times to resist Spanish domination. Thus, in a final dialectical twist, imperial domination of local society by the Incas promoted their resistance to imperial domination by the Spanish. A previous form of oppression (Inca) became an ideology of liberation.

Indigenous rebellions and resistance against Spanish colonization and the saga of the false Inca Pedro Bohorques are still part of the Calchaquí people’s narratives. Despite efforts by the Argentine nation-state to erase these stories from official history, a vernacular oral tradition remains alive in the memory of indigenous resistance and of Inca times (see *Revista Nexo* 2003).

NOTES

1. Current investigations in the South Andes are demonstrating that Inca domination lasted longer than originally thought (see Muñoz Ovalle and Chacama 1999; Palma 1998; Pärssinen and Siiriäinen 1997, among others).
2. By agency I mean subjects’ capacity to act, reflect about their actions, and shift the course of these actions, always under the constraint of the social and cultural structure in which people are embedded. Agency implies the potential for action, the potential and knowledge individuals have to analyze specific situations and act in different ways (Giddens 1979: 56). Agency involves, in this sense, a historically contingent and culturally specific gamut of possible courses of actions.
3. Ushnu were stone platforms that the Incas built in the plazas of their principal centers. They functioned as thrones, places for rituals, libations and sacrifices, and as stone altars.
4. Kallanka were big rectangular buildings without interior divisions, usually established next to the settlement’s main plaza, and used in administrative activities or to lodge high state officials and active troops.
5. Kanchas were the basic unit of Inca architecture. They were walled rectangular blocks enclosing groups of one-room buildings. There was great variation in the size and number of structures that comprised a kancha. Some were residential units, temples, and palaces, while others were used for craft and specialized production.

6. This was a common pattern in other parts of the Empire as well, where a fancy Inca precinct was added to a major indigenous center (see Acuto 2004; Hyslop 1990: 251).
7. Gifford (2003: 278) calls this type of site, where Inca structures appear not inside but alongside pre-Inca settlements, "paired sites". Examples of paired sites are, in Chile: La Puerta in the Copiapó River Valley (Niemeier 1986) and Catarpe in the Atacama Region (Castro 1992; Castro and Cornejo 1990; Lynch 1993); in Argentina: Pucará de Yacoraite and Yacoraite Bajo, and Hornaditas and Rodero-Coctaca in the Quebrada de Humahuaca (Krapovickas 1981–82; Raffino 1993); Esquina Azul and SL005 (Gifford 2003) and Cortaderas Alto and Cortaderas Bajo in the Northern Calchaquí Valley (Acuto 2004); Fuerte Mendocino and Punta de Balasto in the Yocavil Valley; and La Alumbrera and Coyparcito in Antofagasta (Raffino 1988) (Figure 42.1).
8. Before Bohorques was Juan Calchaquí, another prominent leader in the rebellious Calchaquí Valley. Although very important, he never managed to unite the entire region.

REFERENCES

- Acuto, Félix A., 1999, Paisaje y dominación: la constitución del espacio social en el Imperio Inka. In *Sed Non Satiata. Teoría Social en la Arqueología Latinoamericana Contemporánea*, edited by Andrés Zarankin and Félix Acuto, pp. 33–75. Ediciones Del Tridente, Buenos Aires.
- , 2004, Landscapes of Ideology and Inequality: Experiencing Inka Domination. Ph.D. dissertation, Department of Anthropology, Binghamton University, State University of New York.
- Alconini, Sonia, 2004, The southeastern Inka frontier against the Chiriguano: structure and dynamics of the Inka imperial borderlands. *Latin American Antiquity* 15 (4): 389–418.
- Bárcena, J. Roberto, 2001, Consideraciones generales y avances particulares sobre la dominación incaica en el Centro Oeste Argentino. *Actas del XIII Congreso Nacional de Arqueología Argentina* Tomo I: 277–296, Córdoba.
- Castro, Victoria, 1992, Nuevos registros de la presencia Inka en la provincia del Loa, Chile. *Gaceta Arqueológica Andina* 4 (21): 139–54.
- and Luis E. Cornejo, 1990, Estudios en el pukara de Turi, norte de Chile. *Gaceta Arqueológica Andina* 5 (17): 57–66.
- Cornejo, Luis E., 2000, Los Inka y la construcción del espacio en Turi. <http://www.geocities.com/lcbmchap2000/kalla.htm>
- Coben, Lawrence S., 2006, Other Cuzcos: replicated theaters of Inka power. In *Archaeology of Performance. Theaters of Power, Community, and Politics*, edited by Takeshi Inomata and Lawrence S. Coben, pp. 223–259. AltaMira, Lanham, MD.
- Cremonte, María Beatriz, 1994, Las pastas cerámicas de Potrero Chaquiago (Catamarca). Producción y movilidad social. *Arqueología, Revista de la Sección Arqueología* 4: 133–164.
- Farrington, Ian, 1999, El Shincal: Un Cusco del Kollasuyu. In *Actas del XII Congreso Nacional de Arqueología Argentina*, edited by Carmen Díez Martín, Tomo I, pp. 53–62. La Plata.
- Gasparini, Graziano and Luise Margolies, 1980, *Inca Architecture*. Indiana University Press, Bloomington.
- Giddens, Anthony, 1979, *Central Problems in Social Theory*. MacMillan, London.
- Gifford, Chad, 2003, Local Matters: Encountering the Imperial Inkas in the South Andes. Ph.D. dissertation. Department of Anthropology, Columbia University, New York.
- and Félix Acuto, 2002, Space, place and Inka domination in northwest Argentina. In *Experimental Archaeology: Replicating Past Objects, Behaviors, and Processes*, edited by James R. Mathieu, pp. 95–110. BAR International Series, 1035, Oxford.
- González, Alberto Rex, 1982, Las "provincias" Inca del antiguo Tucumán. *Revista del Museo Nacional* XLVI: 317–380.
- , 1983, La provincia y la población incaica de Chicoana. In *Presencia Hispánica en la Arqueología Argentina*, edited by Eldo S. Morresi and Ramón Gutierrez, pp. 633–674. Instituto de Historia, Facultad de Humanidades, Universidad Nacional del Noreste, Chaco.
- and Pío P. Díaz, 1992, Notas arqueológicas sobre la "Casa Morada," La Paya, Salta. *Estudios de Arqueología* 5:9–61.
- Hyslop, John, 1990, *Inka Settlement Planning*. University of Texas Press, Austin.
- and Juan Schobinger, 1991, Las ruinas incaicas de los Nevados del Aconquija (prov. de Tucumán, Argentina). Informe preliminar. In *El Imperio Inka: Actualización y Perspectivas por Registros Arqueológicos y Etnohistóricos*, Tomo II, pp. 15–30. Comechingonia 9, Córdoba.

- Krapovickas, Pedro, 1981–82, Hallazgos incaicos en Tilcara y Yacoraite (una reinterpretación). *Relaciones de la Sociedad Argentina de Antropología* 18: 67–80.
- Lorandi, Ana M., 1980, La frontera oriental del Tawantinsuyu: El Umasuyu y el Tucuman. Una hipótesis de trabajo. *Relaciones de la Sociedad Argentina de Antropología* 14 (1): 147–164.
- , 1983, Mitayos y mitmaqkuna en el Tawantinsuyu meridional. *Histórica* 7 (1): 3–50.
- , 1988, Los Diaguitas y el Tawantinsuyu. Una hipótesis de conflicto. In *La Frontera del Estado Inca*, edited by Tom D. Dillehay and Patricia Netherly, pp. 215–234. BAR International Series, 442. Oxford.
- , 1997, *De Quimeras, Rebeliones y Utopías. La Gesta del Inca Pedro Bohorques*. Fondo Editorial, Pontificia Universidad Católica del Perú, Lima.
- and Roxana Boixadós, 1987–88, Etnohistoria de los Valles Calchaqués en los siglos XVI y XVII. *Runa* 17–18: 263–419.
- Lynch, Thomas F., 1993, The identification of Inca posts and roads from Catarpe to Río Frío, Chile. In *Provincial Inca: Archaeological and Ethnohistorical Assessment of the Impact of the Inca State*, edited by Michael A. Malpass, pp. 117–142. University of Iowa Press, Iowa City.
- McEwan, Colin and Maarten van de Guchte, 1992, Ancestral time and sacred space in Inca state ritual. In *The Ancient Americas. Art from Sacred Landscapes*, edited by Richard F. Townsend, pp. 359–371. The Art Institute of Chicago, Chicago.
- Menzel, Dorothy, 1959, The Inca occupation of the south coast of Peru. *Southwestern Journal of Anthropology* 15 (2): 125–142.
- Meyers, Albert and Cornelius Ulbert, 1997, Inka archaeology in eastern Bolivia: some aspects of the Samaipata Project. *Tawantinsuyu: An International Journal of Inka Studies* 3: 80–85.
- Muñoz Ovalle, Ivan and Juan Chacama, 1999, Los valles serranos de Arica y Tacna en la órbita de los Incas. In *Actas del XII Congreso Nacional de Arqueología Argentina*, edited by Carmen Diéz Martín, Tomo I, pp. 262–79. La Plata.
- Nielsen, Axel, 1998, Tendencias de larga duración en la ocupación humana del Altiplano de López. In *Los Desarrollos Locales y Sus Territorios: Arqueología del NOA y Sur de Bolivia*, edited by María B. Cremonese, pp. 65–102. Universidad Nacional de Jujuy, S.S. de Jujuy.
- Niemeyer, Hans, 1986, La ocupación Inkaica de la cuenca alta del Río Copiapó. In *El Imperio Inka: actualización y perspectivas por registros arqueológicos y etnohistóricos Vol. 1, Edición Especial Revista Comechingonia* 4: 165–294, Córdoba.
- Palma, Jorge R., 1998, *Curacas y Señores: Una Visión del la Sociedad Política Prehispánica en la Quebrada de Humahuaca*. Instituto Interdisciplinario Tilcara, Universidad de Buenos Aires.
- Pärssinen, Martti and Ari Siiriäinen, 1997, Inka-style ceramics and their chronological relationship to the Inka expansion in the southern Lake Titicaca area. *Latin American Antiquity* 8: 255–271.
- Raffino, Rodolfo, 1981, *Los Inkas del Kollasuyu*. Ramos Americana Editora, La Plata.
- , 1988, *Poblaciones Indígenas de la Argentina*. Editorial TEA, Buenos Aires.
- (ed.), 1993, *Inka: Arqueología, Historia y Urbanismo del Altiplano Andino*. Corregidor, Buenos Aires.
- , 1993–98, Réquiem por Watungasta. *Revista Xama* 6–11: 113–126.
- , Diego Gobbo, R. Vázquez, Ayelén Capparelli, Victoria Montes, Rubén Iturriza, C. Deschamps and M. Mannasero, 1997, El ushnu del Shincal de Quimivil. *Tawantinsuyu: An International Journal of Inka Studies* 3: 22–39.
- Revista Nexo*, 2003, http://www.eltribuno.com.ar/nexo/45/nexo45_art05.php
- Stanish, Charles, 2001, Regional research on the Inca. *Journal of Archaeological Research* 9 (3): 213–241.
- Uribe, Mauricio, 2000, La arqueología del Inka en Chile. *Revista Chilena de Antropología* 15: 63–97.
- von Hagen, Adriana and Craig Morris, 1998, *The Cities of the Ancient Andes*. Thames and Hudson, London.
- Williams, Verónica and Terence D'Altroy, 1998, El sur del Tawantinsuyu: un dominio selectivamente intensivo. *Tawantinsuyu: An International Journal of Inka Studies* 5: 170–178.

Inter-zonal Relationships in Ecuador

FRANCISCO VALDEZ

INTRODUCTION

The discussion of inter-zonal relationships must necessarily begin by stating what is to be understood by the concept of relationship in a culture history archaeological sense. In simple terms I will refer to relationship as the interaction—direct or indirect—between two or more individuals (groups or communities) living in close proximity or far apart. Interactions are, in turn, defined as the consequence of human encounter, through physical or ideological contact, in which there is a social exchange of ideas, goods, or information that can be said to be sought by the involved individuals as an agency to supplement or complement their material or symbolic life ways. Social interactions are a very important part of past and present lifeways. They take many forms and can be expressed in a variety of ways that are not always archaeologically evident, as they may or may not leave material traces. Unfortunately, unless there is a way to substantiate such interactions, one cannot establish or infer such relationships.

In general, the presence of exotic goods (raw or processed materials) can be considered evidence of past relationships. The same can be said of technological traditions, ceramic objects, or any other items that can be defined as pertaining to a given cultural affiliation different from that ascribed to the archaeological contexts in which they were found. The nature of these relationships is often difficult to establish, nonetheless, the connection between separate groups can be recognized and its causes and consequences hypothesized.

In the past forty years the concept of interaction sphere has known great popularity with a variety of specific meanings. Originally the term was launched by Caldwell (1964) to describe a process of long distance exchange of ideas and objects related to religious or esoteric concepts that were shared, and were expanding throughout a given territory. The area of interaction is occupied by a number of different polities that contribute to the maintenance of the shared ideology. This concept has a series of ideological and economic implications that have proven to be very useful in the inference of past relationships.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

Ethnology shows that exchange relationships can take various forms involving utilitarian and symbolic items. These may be linked in the mechanisms of exchange systems through functional or ritual forms. The procurement of salt, cotton, wool, textiles, feathers, skins, dried fish, meat, coca or other drugs, stone, and metals is well known. Such items may have played a role in the larger context of acquisition of spouses, shamanic power aids, or exotic status symbols. Exchange systems are complex and dynamic. Their routes are constantly established and abandoned, but some persist and become hallmarks of certain regions. For instance, Salomon (1980) speaks of Yumbos mindala routes in northwest Ecuador (Yumbos: an ethnic group of the tropical lowlands; mindala: an elite specialist group of merchant Indians). The traffic of goods or ideas may take formalized modes as in the case of emissary trade, or it may be a simple down-the-line barter system between different neighboring groups (domestic units or specialized intermediaries).

Regardless of its manifestations, the reciprocating role that interactions fulfill is crucial to local economies and politics (Bruhns 2003: 168). The limited possibilities of organic matter conservation in the majority of the humid environments that prevail in Ecuador reduce the archaeological indicators mostly to mineral or micro-organic evidence. Stone, shell, ceramics, metal, and pollen or phytoliths give direct or indirect signs of past inter-zonal relationships. These clues enter the archaeological record and serve to visualize the related mechanisms and routes of past interactions. In Ecuador, these clues become recurrent in different contexts by the end of the Middle Formative period, and are commonplace in all geographical regions by Late Formative Chorrera times.

Finally, there is another important fact that must be kept in mind: Andean people have a sense of traditional high mobility, which has characterized them ever since their first arrival on the continent. The continual movement between the different ecological zones and niches has not been hindered by the sedentary agricultural lifestyle that prevails from the Early Formative period. The internal variability and the ecological complementarity of the progressively inclined environments promoted regular visits to the neighboring territories. If one adds to this the social or even the ritual aspects of the Andean lifeways, the need to move cyclically increases even more. The distance range of these movements varies from region to region, but everyone had, at one time of his life, some form of inter-zonal contact.

THE SETTINGS

The geographical space known today as Ecuador is comprised of three natural regions that are differentiated by altitudinal and climatic factors (Figure 43.1). These determine the major ecological distinctions that characterize the vegetation cover of each zone. The regions are known as Costa (the coastal plains), Sierra (the mountainous highlands of the Andes), and Oriente (the eastern lowlands, leading to Amazonia). A fourth natural region that claims greater importance in the cultural history of the country is the transitional zone situated on both sides of the Andes. This Ceja de Montaña, or the flanks of the cordillera that join the lowlands with the highland plateaux, is gradually being recognized as the zone where interactions were common and most effective (Lippi 2004; Valdez et al. 2005).

As current research advances, the cultural potentials of the ceja regions appear evident. The enormous variety of plants, animals, birds and insects that thrive in this ecosystem make it one of the richest biodiversity reserves in the world. People discovered the significance and value of this ecological diversity very early. It is certain that the

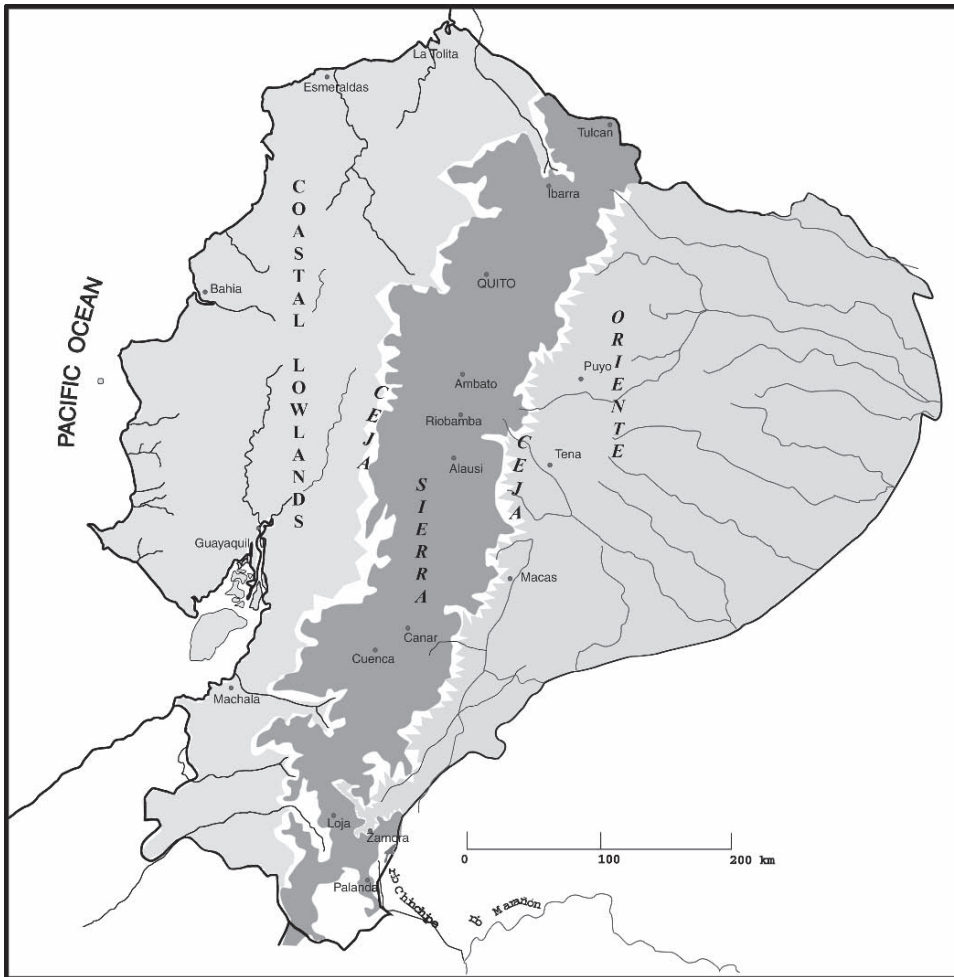


Figure 43.1. Map of Ecuador showing major ecological zones. (Francisco Valdez)

contrasts of the different ecotones were crucial in plant domestication (Pearsall 2003: 248) and served as the natural causeway to distinctive natural resources.

The Ecuadorian coastal plateau is a vast region of varied terrains. The lowland plains are often cut by hilly wrinkles that gradually rise as the western flanks of the Andes. Although there are some major regional differences, most of the coastal landscape was originally covered by a dense humid tropical forest. The northern and southernmost portions of the Pacific coastline host important mangrove swamps, while the center and more specifically the Santa Elena Peninsula are seasonally moderately arid. As one advances through the hinterland, the lush tropical vegetation grows denser, maximizing at the foothills of the Andes.

It is no wonder that the coastal lowlands became the perfect setting for a rich sequence of cultural development that expanded over 12,000 years. More than a dozen different cultural phases have been identified throughout this lapse, each with a distinct geographical culture area and its own cultural history (Figure 43.2). Social interactions were strong

PERIOD	COASTAL LOWLANDS				HIGHLANDS (SIERRA)			EASTERN LOWLANDS (ORIENTE)			DATES
	NORTH	CENTER	SOUTH		NORTH	CENTER	SOUTH	NORTH	CENTER	SOUTH	
SPANISH CONTACT											1532
INTEGRATION	Atacames II Balao Atacames I Tumbavido	Manteño	Inca		Negativo Carchi Capuli / Tuza (Piartal Cuasmal) Cochasqui Chaupicruz	Caranqui Panzaleo/Cosanga Puruha Tuncahuan Cafari (Cashaloma) (Taculshapa)	Catacocha Cariamanga	Napó	Pastaza D		1480
		Jama Coaque II	Huancavilca						Cosanga Pillaro III-IV		
	Las Cruces		Jambeli	Milagro Quevedo					Upano III		
	Cantarana Herradura							Cosanga Pillaro I- II			700/800
REGIONAL DEVELOPMENT	Guadual Tiaone Tolita Tardío Selva Alegre La Tolita	Bahía II Guangala Jama Coaque I Bahía I	Tejar	Daule	Cerro Narrio II				Pastaza C		
			Engoroy						Tihuacuno		
								Yasuni	Upano II		0 300
LATE	Mafá Tolita Temprano o Tachina	Tabuchilla	Guayaquil		La Chimba		Catamayo D	Tacana			1000
FORMATIVE		Chorrera			Cerro Narrio I Chaulabamba		Catamayo C				
							Catamayo B				
MIDDLE		Machatilla					Catamayo A	Los Tayos Mayo Chinchipe			1500 2500 3000/5500
EARLY											
		Valdivia					PreUpano				
Archaic			Las Vegas					Jondachi			6000/9000
Paleoindian				El Inga	Chobshi	Cubilan					
											10 000 +/- 15 000

Figure 43.2. Chronological chart of Ecuadorian prehistory. (Francisco Valdez)

and continuous among the coastal people, following both a north-south axis, as well as an intensive east-west direction.

The highlands can be described as a long chain of inter-montane valleys, stretched from north to south, flanked by the twin main branches of the Andes. The high plateaux consist of numerous broad dales limited by deep river basins that drain the uplands through the eastern and western slopes of the Andes. Transversal ranges that are formed by the intermittent narrowing of both cordilleras interlock the valleys. As a result, the plateaux contain individual natural units separated as a succession of chain links. Thus, the access from one valley to the other is actually restricted by a series of natural barriers that can be traversed through passes (known as *cajas*) that alternate in both north-south and east-west directions at various altitudes. In spite of being situated on both sides of the equator, the highlands enjoy a mild and seasonally wet climate. Culturally speaking, the Andean corridor has known a long sequence of at least twelve different social entities, each evolving independently in its respective valley, and developing a firm regional personality throughout its time.

Oriente is the generic name that best describes the Ecuadorian region that Lathrap (1970) denominated the "Upper Amazon" for adjacent Peru. It includes the steep slopes of the eastern cordillera and the tropical lowlands that, taken together, define the Amazon basin. There are important changes to be seen as one descends from close to 3,000 masl, to the lower flanks of the eastern cordillera. From the start, the tropical forest dominates the steep slopes, and as one goes down the first thousand meters the humidity rises sharply. The cloud rain forest that covers this "ceja" is rich with a variety of trees, tangled vines, wide leafed undergrowth and orchids. Under 1,500 masl the temperature is hot and heavy with perpetual moisture set by the rain-evaporation-rain again sequence. Under 500 masl the vegetation cover is thicker and the forest grows taller with an impressive canopy that stretches endlessly on the lower plateaux. From this altitude downwards the rocky rapids that drained the slopes become calm and the waters are progressively navigable as the riverbanks get larger and the first meanders appear in the flat country. From an archaeological point of view, it is not surprising that this is the least known region of the country. So far, only a handful of cultural phases have been defined.

To summarize the geographical setting, the present political frontiers give Ecuador roughly the shape of a wide isosceles triangle, with the flat base set along the Pacific coast and the angular point oriented towards Amazonia. The three main regions are differentiated by altitude and climate. A balancing landscape pattern of hot lowlands-mild highlands-hot lowlands has set the ecological conditions that have fostered interaction since the early days of human occupation throughout the territory.

CLUES AND EVIDENCE

Traditionally the coast has been considered the original cradle of the Ecuadorian cultures, since those cultures seem to have appeared there earlier and with a greater degree of social complexity than in the rest of the Andean territory. Naturally, this impression is rapidly fading as research in the other regions is amplified. From what we know today, it seems that the original bands of hunter-gatherers came down from the north following at least two different routes, each emphasizing the ecosystem's resources and specializing either in hunting or collecting. A coastal path focused on maritime adaptations that included shell-fish collection and the utilization of terrestrial animals and plants. Early examples of this strategy are found in the Santa Elena Peninsula tar seeps (Edmund 1965) that have recently

shown possible associations of stone tools with Late Pleistocene fauna such as megatherium, mastodon and glyptodon fossils (*El Universo* press release, 14 April 2004). On more solid ground is the evidence from the Vegas culture—also in the Santa Elena Peninsula—that represents well established groups thriving on resources from marine, mangrove and forest ecosystems (Stothert 1985, 1988).

The occupants of some thirty Vegas localities were not only hunting and gathering, but were also experimenting with horticulture. Phytoliths of several plants have been identified in the strata of the ancient settlements: squash as early as 10,000 BP and maize by 6000 BP (Stothert 1985, 1988; Piperno and Stothert 2003). Unfortunately, it is almost impossible to establish relationships between these and other coastal sites of this early period, since they are probably all underwater on the continental shelf. The Santa Elena Peninsula—being the outermost western point on the coast—is probably the only remnant that has escaped the oceanic transgression that covered the Pacific coast some five thousand years ago (Valdez 2003: 277).

Searching for inter-zonal relationships during the Pre-ceramic or Archaic periods proves to be a difficult task; there is so little evidence to be found throughout the different regions that inferences are difficult to make. Nevertheless, some significant data come from the highlands, suggesting that the Andean corridor was a second route of entry from the north. Three early sites have been reported at altitudes that range from 2,500 to 3,100 masl. From north to south, these are: El Inga (11,000 BP) in the vicinity of the Quito Valley (Bell 1974; Mayer-Oakes 1986); Chobshi Cave (8000 BP), some 50 km to the east of Cuenca (Lynch and Pollock 1971); and Cubilán (10,000 BP), situated on the eastern escarpments of the Andes, about 100 km north of Loja (Temme 1982). The interesting fact is that the three sites show a very different technological tradition from that of the Vegas culture (Salazar 1983: 125). The early coastal sites do not contain the bifacially flaked points or artifacts that are common in the highlands; rather, their toolkits are composed of an unspecialized block and unifacial flaked stone technology. This difference is crucial in determining that the two regions had little or no relationships at this early stage. In turn, the highland groups could have had contact as they moved up and down the central corridor. Obsidian originating in the northern highlands, common in the El Inga region, was found in Chobshi, some 400 km south of the original flow (Lynch and Pollock 1971; Burger et al. 1994). Obsidian materials have also served to identify the only supposed pre-ceramic site in the oriente region. Jondachi is situated on the eastern slopes of the Andes, at less than 80 km away from the obsidian quarries, so the presence of volcanic glass artifacts should not be surprising. Although the contexts for this locality are not well defined, Porras (1980) identified the lithic materials as pertaining to a technological tradition similar to the El Inga complex.

Thermoluminescence dating placed the obsidian industry in the 10,000 BP bracket that would be coeval with El Inga. Whether or not Jondachi is actually an “early man” site is not important at this point, since its significance is warranted by the use of exotic raw materials that imply some sort of connection with other ecological zones. It seems reasonable that the pre-ceramic hunter-gatherers who lived in the highlands began to explore the eastern side of the Andes at an early date. Foraging lifeways are based on continual movement that amplifies the knowledge of the environment and its different resources. In the process of food procurement, people went to the limits of their regions and exploited the natural commodities that were to be found in other ecological niches. This would eventually lead to the establishment of regular trails down to the ceja regions on both sides of the cordillera.

This process has been confirmed down the western slopes of the Andes to the Pacific coast at several Middle to Late Formative sites that include Real Alto, the San Isidro area in

Manabí, and La Emerenciana, El Oro, all of which are Valdivia phases 7–8 levels (Marcos 1995: 136; Zeidler et al. 1994; Staller 1994). Nambillo and Nueva Era are two sites situated at 1,000 to 1,500 masl; their remains include abundant obsidian materials that were quarried in the high Andes Mullumica flow. Some sort of interaction with the highland groups transported this and other non-visible products to the low cloud forest. In return, salt and different tropical vines and woods could have been taken to the Quito Valley (Lippi 1988, 2003; Issacson 1994; Burger et al. 1994). Obsidian followed the western routes and found its way to many coastal locations from this same time onward. Machalilla and Chorera phase sites from northern Esmeraldas to the Guayas basin present abundant obsidian materials (Meggers, Evans and Estrada 1965; Zeidler and Pearsall 1994; López y Sabastían and Caillavet 1979; Valdez 2006: 206). Interregional connections involving obsidian trade continue throughout the rest of the pre-Columbian period, both in a north-south axis, as well as in an east-west direction.

The utilitarian features of exotic materials are not the only aspects that spur their acquisition. Symbolism is another factor that provided an early drive for inter-zonal contacts. From Early Formative times the use of various marine shells is attested in many distant inland localities. The same applies to various types of stone, where color, hardness and fine grain texture added to intrinsic exotic value. The significance attached to shell and stones is not purely ornamental (beads and pendants); in most cases its importance is directly linked to the symbolic aspect that is attached to certain materials and their colors. Several authors, such as Murra (1975), Paulsen (1974), and Marcos (1995b), have amply explained the value of the warm water species *Spondylus* and *Strombus* in the Andean world. It is thus not surprising to find these and other species of marine shells in the highlands or in the eastern lowlands since the Formative Period. The ideological significance of these shells was widespread and has been attested by the presence of whole specimens, or worked fragments, in ceremonial contexts related to water catchment, weather influence, and fertility (Stothert 2003: 364). This is especially evident in the southern highlands and throughout Peru, where dry to arid conditions prevail year round. Two early examples from central Loja include a buried adoratorio platform (altar) found and described by Uhle in 1919, at Chinhuilanchi (cited in Jijón 1997 [1951]: 140), and the better documented house floor offering described by Guffroy (1987: 193) in La Vega, Catamayo. In both instances there is a common association of complete *Spondylus* bivalves containing tokens of small stone slabs and beads (greenstones now identified as turquoises in Catamayo). Although there are no given dates for the Chinhuilanchi find it is most probably coeval with the Formative Cayamayo B tradition, dated to 2900 BP.

Further to the east, on the humid oriental ceja (800 masl) another interesting find was made in the famous Cueva de los Tayos (the cave of the oil birds, *Seatornis* sp.). In his initial explorations of the cave, Porras (1978) found remains of a disturbed burial with dispersed fragmented offerings that involved four whole *Spondylus* valves, supposedly placed next to more than forty carved pendants of mother-of-pearl (*Pinctata Mazatlantica*) and other marine shell beads (*Conus* sp.). Associated ceramics included fragments of a stirrup-spout bottle with an anthropomorphic head represented on the short tube spout, as well as probable double-spout-and-bridge bottles with other anthropomorphic and zoomorphic motifs. The bodies of these vessels were painted with a glossy red-on-buff slip that included bands reminiscent of the Machalilla coastal phase ceramics. Porras (1978) and Lathrap (1970) have suggested that the stylistic modes and features found in these and other similar Middle to Late Formative traditions (Late Tutishcainyo) of the eastern Andes could be taken as evidence of widespread trade and the exchange of ideas at this time. Both authors favored

Machalilla as the probable inspiration source of the eastern site innovations. Porras used C¹⁴ analysis on the shells and ceramic thermoluminescence methods to date the Cueva de los Tayos materials at around 1500 BC.

Evidently, the marine shell evidence is not limited to the previously mentioned sites, but in these cases it is interesting to note that the west-east communication axis coincides with the existence of several important river drainages that enabled the inter-zonal transit of goods and ideas. In 1971, Robert Braun noted that the ecological boundaries between the Pacific coast lowlands, the highlands, and the eastern ceja de montaña were considered to be major barriers to population movement and cultural diffusion (see Braun 1982). “However, in southern Ecuador the river systems on both sides of the Andes particularly have the potential to facilitate the flow of culture between the divisions” (Braun 1982:43). Among other things, Braun used this geographical argument to substantiate the possible eastern origins of early ceramics on the Pacific coast; in doing so, he raised the plausibility of very probable contacts between the Valdivia-Machalilla groups and the Cerro Narrío highland communities. The ever-present *Spondylus* artifacts that characterize Narrío contexts are proof enough of these early and continuous connections.

By the Late Formative period, the complex societies that appear throughout various regions of the country regularly used the major river systems as the natural routes to interconnect and share their respective knowledge. From this time on ceramics begin to play an important part in the archaeological identification of inter-zonal relationships. If Machalilla was the seminal ceramic phase that is supposed to have been at the origin of the development of many ceramic traits in the northern and southern highlands of Ecuador, it is with Chorrera that they become most evident throughout the three regions. As shall be seen below, the Chorrera ceramic style expansion is felt from the northern Esmeraldas coast (as well as the present southern Colombian coast) down to the Guayas basin and its hinterland. Evidence of Chorrera influence can also be followed down from the northern highlands—at sites such as La Chimba (Athens 1995) or Cotocollao (Villalba 1988), to the central highlands at Loma Pucará (Arellano 1994), and eventually to the Cerro Narrío-Challuabamba complex and other related southern highland sites, such as Pirincay.

Without getting into the specific details that cannot be fully treated in the scope of this chapter, some of the outstanding traits of the Chorrera ceramic technological tradition are thin walled, evenly fired vessels, modeled, slip-painted and polished with great care. Chorrera is noted for the production of realistic lifelike vessel forms that portray anthropomorphic, zoomorphic, and even house or platform architectural iconographic motifs. Many of these are jar-bottles with an innovative whistling bridge spout that adds sound to the appealing, three dimensional, round sculptural forms (Cummings 2003: 429,444,459). Characteristic decoration modes involve complex motif incision/excision and varied painting techniques that include resist and iridescent painting in black, gray and red to orange-pink tones.

In most of the highland sites the Chorrera influence is accentuated by the presence of marine shells (paraphernalia that is not necessarily always made of *Spondylus*), obsidian artifacts, and eventually an agricultural reliance on maize. In the 1970s and early 1980s it was generally thought that intensive agriculture based on corn was intrinsically associated with the Chorrera expansion (Crespo and Vargas 1977; Holm and Crespo 1980). Although new evidence is changing this view (Pearsall 2003), it cannot be denied that the social changes that came along with the lifestyles of the emerging complex societies were dependant on a stable agricultural system based on maize. On the other hand, the pottery-making craft specialization that becomes evident during Chorrera times is reflecting one of the principal features

of the burgeoning local chiefdoms: that is, the establishment and control of a wide trade network. Bruhns describes the drive for this phenomenon as “the emerging Chorrera elite’s desires for exotica themselves ... It is evident that, at least in the southern highlands, when coastal materials appear, the local people were engaged in making goods for exchange. Many sites are also neatly perched to control traffic” (Bruhns 2003:159–160). With major exchange networks well established, the inter-zonal interactions became commonplace across the permeable geographical frontiers that separated the three major regions.

Evidence of this process may be asserted with the presence of ceramic or metal objects from specific cultures in archaeological contexts found in distant settings. Exotic articles have been traditionally used to establish long-distance trade relations, although the mechanisms of the actual transport are often ignored. There are many examples of such interactions, but mention must be made of a particular anthropomorphic representation that appears in Late Formative contexts in the northern highlands. In 1949 Jijón reported the presence of a Thin Orange vessel in the vicinity of lake San Pablo, in Imbabura province; Thin Orange is a Mesomaerican ware. From the archeological point of view this area has a long culture history where the Caras ethnic lords played the leading role since the thirteenth century AD (Echeverría 2004). In the Late Formative, La Chimba phase materials are the most important manifestation of the local groups (Athens 1995). At the time of the reported find (late 1940s) archaeological knowledge was heavily influenced by diffusionism, thus the supposed Mesoamerican origins of exotic materials, i.e., Thin Orange ware, were readily accepted. The vessel (Figure 43.3a), now renamed as the “canastero de Cusin”, on account of the name of the locality where it was originally found, has quite a different story to reveal.

Canastero, literally the Spanish term used to describe the individual who carries a loaded basket, is also the name that is given to a specific vessel form. It consists of the representation of an individual, usually shown in a seated or squatting position, who has an open container attached to his back. The container may or may not have the actual shape of a basket, but it is seen as the depiction of a bulky burden. The functional aspect of the form is evident, but most of the reported specimens do not have any actual traces of usage. This elegant form is, rather, interpreted as an offering or a token of status. The human effigy is frequently adorned with symbols of rank and the position of the body reflects authority. A variety of canasteros have been reported in Ecuador, Colombia and Mesoamerica (Villalba 2001: 62). Archaeological work in the La Tolita ceremonial center (Valdez 1987, 1992) has revealed that the specimen from Cusin is actually a “trade item” from the equatorial Pacific coast. The apparent Maya appearance that justified the initial interpretation of this vessel as an example of Mesoamerican Thin Orange ware actually falls within the stylistic norms of the Late Formative Chorrera tradition of northern Esmeraldas (Figure 43.3b). Fragments of identical objects were found in the stratified early contexts of Tolita Island. Thus, the Cusin canastero can now be reinterpreted as an object that originated in the coastal lowlands and traveled to the highlands as a probable presentation token destined for a local chieftain. The object was so valued that it followed its new owner to the afterlife.

Another interesting point that should be stressed is the actual depiction of a probable trade emissary who arrived loaded with goods from different regions. The canastero effigies have been interpreted as the mindalaes or full-time merchants. Looters recently found another vessel of this same type at a location some 30 km north of Cusin. Although the style of the personage is not the same as that in Cusin, one can identify the high status of the individual from the headdress and ear ornaments. This specimen comes from Los Soles, a La Chimba phase site where other Chorrera-Cotacollao style materials have been found



Figure 43.3. The Late Formative Chorrera vessel type known as canastero (burden bearer). a. The original “canastero de Cusin,” reported by Jacinto Jijón y Caamaño (1949) from the Imbabura highlands and said to be Thin Orange (Mesoamerican) in origin. b. Another Late Formative Chorrera canastero, from northern Esmeraldas. (Courtesy: Banco Central del Ecuador)

(Echeverría 2004: 65). In both cases, these materials reflect the existence of two different interaction spheres that are linking coastal-highland and highland-highland peer polities.

On a larger regional level, another example of this phenomenon is demonstrated in the central and northern highlands where diagnostic Panzaleo or Cosanga pottery has been identified in various contexts (Figure 43.4; Jijon 1997; Porras 1980). These technologically remarkable ceramic materials originally came from the eastern ceja region and are omnipresent throughout the northern and central highlands, from the Late Formative until the time of European contact. Unfortunately, in spite of the cultural significance of this eastern montaña manifestation, the basic puzzle regarding its origins and the nature of its interactions still persists (Bray 1995). It is evident that Cosanga materials traveled through regular functioning routes, up and down the cordilleras, on both the north-south and east-west axes. Ceramics of this cultural tradition have been found on the southern coastal plains of the Guayas basin, in the highlands around the present political border with Colombia, and down the Amazonian lowlands close to Puerto Napo (Porras 1980). The significance of these inter-zonal relationships has not yet been properly appraised. We must agree with Burger when he states: “the exchange of an easily identifiable exotic does not necessarily link cultures in any but the most superficial way. If intermediaries from the intervening frontier region served as mediators, the contact may have only limited impact beyond the transitional zone” (Burger 2003: 478). This could be precisely the case for the Cosanga materials on economic grounds. On the other hand, the eastern ceramic trade items could be expressing the transit of non-material concepts or practices, such as the transmission of shamanic power, from its believed sources in the Amazonian montaña to its various recipients throughout most of the country. Such practices are still relevant today but, as before, leave only scanty material evidence. The elite-related Cosanga materials could hypothetically be interpreted as the trace of such activities.



Figure 43.4. Examples of Panzaleo or Cosanga pottery from the eastern ceja region. (photo by Francisco Valdez)

It is far easier to make inferences on the basis of specific items, such as the representations indicative of exotic drug consumption. Traditionally, objects such as figurines with quids in the cheeks and drug related paraphernalia—ritual grinding equipment, inhalers, snuffing tablets, spatulas and lime pots, etc.—have been used to infer probable inter-zonal contacts. The widespread use of coca, tobacco and other tropical psychotropic plants—that cannot be produced in the various ecological settings of their final utilization—imply the existence of regular short and long distance trade networks. Stothert (2003: 386) has convincingly discussed the relationship between shamanic practice and the vitality of the Formative Period exchange network. Following Mary Helms' (1979) theories, Stothert argues that the ideological and sometimes political power that shamans had in the ancient societies forged close relationships among various communities. These could take many forms and be expressed in vertical and horizontal time and space dimensions that are almost impossible to verify archaeologically. Nonetheless, the indirect evidence must be considered in its full dimension when discussing interregional contacts. The same thing can be said of the highland region that now covers both sides of the Ecuador/Colombia border. Culturally this is the *Negativo del Carchi* or *Capuli* phase zone, where a specific type of *coquero* (coca-chewing) figurine is quite popular (Figure 43.5). The figurine is in a static seated position and is shown chewing coca with a quid bulging in one or both of its cheeks. The remarkable feature is that the individuals depicted are almost naked, with a skimpy loin cloth that is utterly unfit for the permanent cold weather that reigns over all altitudes above 3,000 masl. These figures would, rather, reflect the inhabitant of the eastern or western *ceja* lowlands, which is surely the source of the prized coca leaves.

Metallurgy is another element that played a role in inter-zonal relationships in ancient Ecuador. Gold artifacts of a defined cultural-technological tradition appear in distant settings. Such is the case of La Tolita gold figurines that have been found in the highlands of El Angel, Carchi and in the north Peruvian Frias-Vicús region (Jones 1979: 87–91). The procurement of ores, transmission of the technologies involved in metallurgy, and final use and traffic of the objects forcibly imply interactions. Again, it is with the Chorrera technological expansion that the use of metals begins in the coastal lowlands and the southern highlands. Gold appears first in the archaeological record with the use of hammered natural flakes and nuggets that were probably found in alluvial placer deposits. An early date of 2660 BP for this type of metallurgy comes from the north coast of Esmeraldas, not far from La Tolita (Valdez 2006: 206). Some four hundred years later the use of copper appears in this same zone, with the technological sprint that the evolving La Tolita culture imparts to the region. The problem is that copper is not one of the native ores that abounds on the coast of northern Ecuador. The actual copper mines have not been identified yet, but we now know that the northern highlands and the eastern slopes of the Andes have natural deposits that could have provided the needed metal. The use of copper in the La Tolita culture area becomes commonplace by the beginning of the Christian/common era and this means that regular inter-zonal contacts were already in place. Other possible sources for copper ores were the first flanks of the western *ceja* region in the central part of the country (Toachi/Macuchi cited in Holm 1978: 352) or, the southern highlands of the Cañar, Azuay region (Holm 1966/67: 140–141). Yet another probable source was northern Peru (Guinea 1998: 83, 108). According to an early Spanish chronicler this region was regularly trading, by sea, with the Ecuadorian coast at the beginning of the sixteenth century. A similar situation is present at the Putushio site, located in the southern highlands of Loja (Rehnre and Temme 1994: 274). Here native gold was



Figure 43.5. Coquero figurines. a. from Santa Ana-La Florida, in the form of a llipta; b. from Carchi/Capuli. (photo by Francisco Valdez)

worked by hammering and smelting in the Late Formative period (3420 ± 255 BP), while copper and the copper alloy tumbaga only appear by the Regional Development period (1770 ± 30 BP). In both cases the use of copper goes in hand with the development of inter-zonal long distance contacts.

EVIDENCE OF AN EARLY PAN-REGIONAL NETWORK OF INTERACTIONS: THE PACIFIC-MARAÑÓN CONNECTION

Evidence recently discovered in the eastern slopes of the upper Amazon ceja is especially relevant to the topic of inter-zonal interactions. The settings are the steep gradient river valleys that divide the southern highlands and the Amazonian lowlands of the upper Chinchipe-Marañón basin. Vestiges of an Early Formative culture have been found in this intermediate zone that tie a great variety of ecological niches. It is remarkable that in this new locality we encounter many of the clues we have previously reviewed. The materials and their implications argue for the importance of early and intensive contacts that linked people on both sides of the Andes with the coastal polities of the equatorial Pacific.

A regional survey in the Zamora-Chinchipe province has identified the archaeological remains of a previously unknown society that settled the Mayo-Chinchipe river system. This new-found culture has been named Mayo-Chinchipe. The evidence brings light to the significance of the Huayurco site materials, discovered in the early 1960s by Peruvian archaeologist Pedro Ponce Rojas at the confluence of the Tabaconas and Chinchipe rivers, not far from their union with the Marañón. At that time, the presence of polished stone plates and bowls, fine ceramic vessels, and marine shell trumpets was taken to be a local manifestation of Peru's Early Horizon Chavin tradition (Ponce Rojas 1985; Burger 1992: fig. 241).

The focal point of our study is the Santa Ana-La Florida site, located at the margins of one of the headwater streams of the Chinchipe basin (Figure 43.6). At an altitude of 800masl, the site covers an area of just over 1 ha at the bottom of a narrow river valley. The surrounding landscape is part of the knife-like ridges that descend rapidly into the lowlands. In this region, five parallel ceja ranges have historically served as the natural causeways linking the upper cordillera (3,000 masl) with the tropical forest slopes that go down into the semiarid lowlands of the Marañón basin (at 500 masl). The study area is thus situated at an altitudinal midpoint that could prove to be strategic regarding access to varied natural resources.

The site has only been partially explored, but the architectural remains that have been uncovered display the general layout of what seems to be a local ceremonial center. At the present date, the stone foundations of several round structures that are clustered around a large double-row stone circle characterize the site. The circle measures 40m in diameter and obviously divides the precinct in two distinct components: an exterior section marked by several ring-shaped structures, and an interior space where three sets of rectangular structures are symmetrical opposed in tiers. There are very few signs of domestic refuse middens throughout the explored parts of the site.

To complete the general picture, the southeastern end of the naturally descending riverbank terrace has been artificially transformed. A complicated construction process has elevated and leveled a horizontal plane of over 80m². A series of concentric stone contention walls held and reinforced the riverbank fall line. In the interior portion of the terrace, the walls convened and formed a spiral point of origin. At the very center of this stone coil, a ceremonial hearth was found, with an offering cache placed under small stones. In the interior spaces between some of concentric walls, burial offerings—composed of turquoise beads and polished stone bowls—were deposited. We assume that these were accompanying probable elite burials, but the bone conservation is so poor that only small fragments of a human skull were recovered. The deposits were made in simple pits. Also, looters pillaged a large part of the southern tip of the terrace, leaving only scattered evidence among the scavenged ruins.

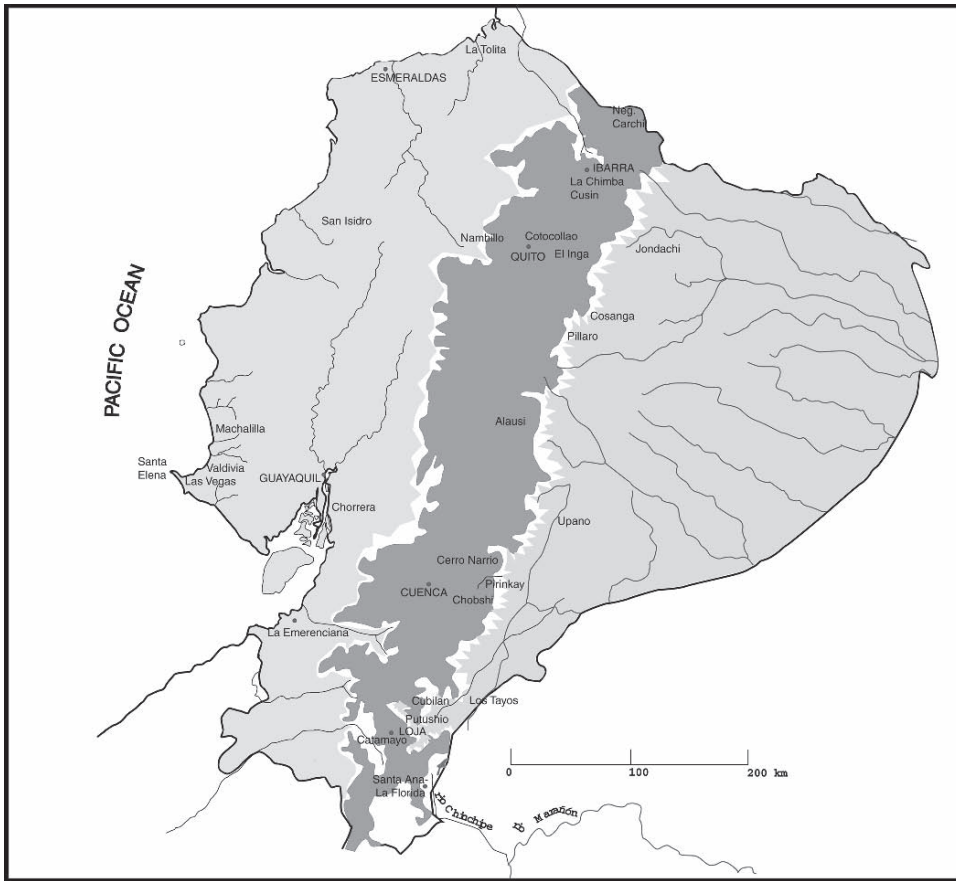


Figure 43.6. Map showing location of major sites and archaeological cultures referred to in text, including the Santa Ana-La Florida site of the newly identified Mayo-Chinchipe culture. (Francisco Valdez)

The best mortuary information came from a stone-lined shaft tomb, found just next to the previously mentioned hearth. The badly preserved traces of long bones of at least two individuals were found in connection with a rich deposit of funerary goods. Among these were the fragments of a *Strombus* shell that had been divided between the individuals. The ceramic vessels included small hemispherical, and carinated, necked bowls; a small, slightly flanged globular pot; an anthropomorphic four-legged lime container; and four stirrup-spout bottles, each with different body forms. Lapidary materials are fine-grained polished bowls, plates, and a small oritomorphic mortar. The tomb contained a large amount of personal adornments made of various greenstones (where turquoise and pseudo-malachite are the most frequent, as per identification made by Dr. Bernard Gratuze); these include pendants and beads of different types and shapes. Most of the beads were sewn onto textiles that have not survived the humid, highly acid ground environment.

The antiquity and the length of the occupation of the site greatly increase the significance of these finds. The construction of the complex apparently took place between 4960 and 3685 BP (mean date 4323 BP/2373 BC), representing an Early Formative

Table 43.1. Corrected and calibrated C14 dates from Santa Ana–La Florida and the related site (GPS-401).

Lab Number	Measured radiocarbon age	2 Sigma Calibration	Average radiocarbon age	Provenience
Beta – 197175	4300 ± 40 BP	3010–2880 BC (4960–4830 BP)	2945 BC/4895 BP	Occupation level –150 cm
GX#30044	4000 ± 71 BP	2857–2301 BC (4807–4449 BP)	2579 BC/4628 BP	Artificial terrace, burnt floor –40 cm
GX#30043	3990 ± 70 BP	2841–2294 BC (4791–4422 BP)	2568 BC/4607 BP	Ceremonial hearth –90 cm
Beta – 172587	3860 ± 40 BP	2460–2300 BC (4410–4250 BP)	2380 BC/4330 BP	Ceremonial hearth –90 cm
Beta – 188265	3830 ± 70 BP	2470–2040 BC (4420–3990 BP)	2255 BC/4205 BP	Artificial terrace, burnt floor –50 cm
Beta – 188263	3820 ± 40 BP	2395–2375 BC (4345–4325 BP)	2385 BC/4335 BP	Artificial terrace, burnt floor –90 cm
Beta – 210219	3790 ± 160 BP	2620–1750 BC (4570–3700) BP	2185 BC/4135 BP	West terrace 22–23 cm
Beta – 197176	3700 ± 40 BP	2270 – 2260 BC (4220–4210 BP)	2265 BC/4215 BP	Shaft tomb, offerings context – 220 cm
Beta – 188266	3690 ± 40 BP	2190–2170 BC (4140–4120 BP)	2180 BC/4130 BP	Ceremonial hearth –75 cm
Beta – 188264	3660 ± 90 BP	2205–1735 BC (4155–3685 BP)	1970 BC/3920 BP	Artificial terrace, burnt floor –50 cm
Beta – 210217	3480 ± 70 BP	1940–1600 BC (3880–3550) BP	1770 BC/3505 BP	GPS-401 early ceramic site –110 cm
Beta – 210218	3140 ± 70 BP	1520–1200 BC (3460–3150) BP	1360 BC/3305 BP	West terrace hearth –20–30 cm
Beta – 181459	2930 ± 150 BP	1485–800 BC (3435–2750 BP)	1143 BC/3093 BP	Exposed road profile –145 cm
Beta – 188267	2280 ± 40 BP	395–200 BC (2345–2150 BP)	298 BC/2248 BP	West terrace, Tacana ceramic context –35/55 cm

cultural phase that evolves and extends over a thousand years. The C¹⁴ assays that have been obtained from several contexts seem consistent and conclusive (Table 43.1).

The ceramic materials give insight to the possible interactions that this cultural phase maintained. Comparison with other early pottery from the eastern lowlands is impossible, since no other equally early ceramic assemblages from the eastern regions of southern Ecuador or northern Peru have yet been described. Nevertheless, similarities have been noted with pottery from the early southern highland Catamayo A phase (Guffroy et al. 1987) and with the middle-to-late (3–8) Valdivia phases (Marcos 1978; Staller 1994). Both of these traditions are coeval with the Mayo-Chinchipe complex.

The symbolic connotation of the encountered materials and forms adds to the novelty of these early wares. The iconographic representations involve realistic and stylized human forms, birds, serpents, and felines (Figure 43.7). Some avian and snake representations are identical to those on textiles found at Huaca Prieta and La Galgada in Peru (north coast and north highlands, respectively). The presence of this tradition, thought to be proper to the Peruvian late Pre-ceramic/Pre-ceramic VI/Late Archaic period (see Chapter 31 in this volume), suggests the early existence of an ideological scheme that would further evolve into the Formative Andean traditions.



Figure 43.7. Iconographically elaborate objects from the Santa Ana-La Florida site. (Francisco Valdez, Laurence Billaut, Jean Guffroy)

The portrayal of the human figure is most probably the effigy of a particular and important member of that society (Figure 43.8). The powerful image of the shaman is evoked in the act of transformation. The dualistic representation of a human face on each side of the body of a stirrup spout bottle is striking. The lower body of the bottle very realistically represents an open *Spondylus* bivalve, from which emerge the twin faces of



Figure 43.8. Human-shaman figure from the Santa Ana-La Florida site. (Francisco Valdez, Laurence Billaut)

an individual. The dualistic portrait shows, on one side, a round face with an almost jovial expression, while the other side is slimmer, with a severe look and a descending, partitioned lower lip. This type of mouth is reminiscent of the Valdivia phases 3–5 feline jaw representation.

A second ceramic effigy has the form of a four-legged, spherical, closed bowl with an anthropomorphic head protruding from one end. The body does not have anatomical relevance. The short stubby legs are partly decorated, but the simple conic form is merely functional. The head is the most outstanding feature; it depicts an individual chewing something shown as a protrusion in the right cheek. Thus, this is the representation of a *coquero* or coca chewer. The head is hollow and presents a flat prominent line that could be interpreted as some sort of headdress or simply as bulging eyebrows. Two large circular orbits, a short rounded nose, and the partially opened lips are well modeled. The realism of the expression of the mouth is enhanced by a grimace with three wrinkles at the lower left end. The vessel is a *llipta* box (lime container): in its interior was found a white substance powder that has been identified as calcium carbonate (identification made by Dr. Bernard Gratuze). This substance, when mixed with saliva, helps liberate the alkaloids in coca leaves.

The third image has been incised on the exterior of a polished stone bowl. The features are simple and a bit less realistic, but this is probably a deliberate trait used to underline the transformation of the individual into an avian form. The body presents the

shoulder, arms and legs spread out as the wings, and the V-formed tail feathers that some species have. The head is very human, with the eyes, nose and mouth engraved with broad line traits. This figure has been represented in two opposing quarters of the vessel. The two other quarters are decorated with another enigmatic motif: the upper body and triangular head of a smiling serpent. From its lower body two opposing raptorial bird heads emerge (Figure 43.8 bottom).

Stylistically the materials are unique and announce a new tradition from which certain regional traits will later evolve, taking particular forms within Andean ideology.

The quintessential characteristic of the Mayo-Chinchipe complex are the fine, polished stone wares (Figure 43.9). Some of these are engraved with rich and complex iconographic motifs. These include plates, bowls, mortars, and figurines. The stone utensils and containers were used in communal or individual rituals that eventually took the form of a ceremonial tradition that would spread throughout the coast and highlands of Ecuador and Peru (Petersen 1984). Some of the artifacts have been pecked, ground and polished from the local cobbles that abound in the riverbanks and terraces of the Chinchipe drainage. These are mostly gray andesite, black basalt, and white or cream colored, fine-grained porphyry, calcites, and quartz. The finer objects, usually the decorated bowls and finely shaped animal mortars, were made of red, and red-brown marbeled breccia, some kind of diorite or even onyx. The source of the finer stones has not been yet identified, but it is possible that there were many quarries, since similar objects appear at distant settings.

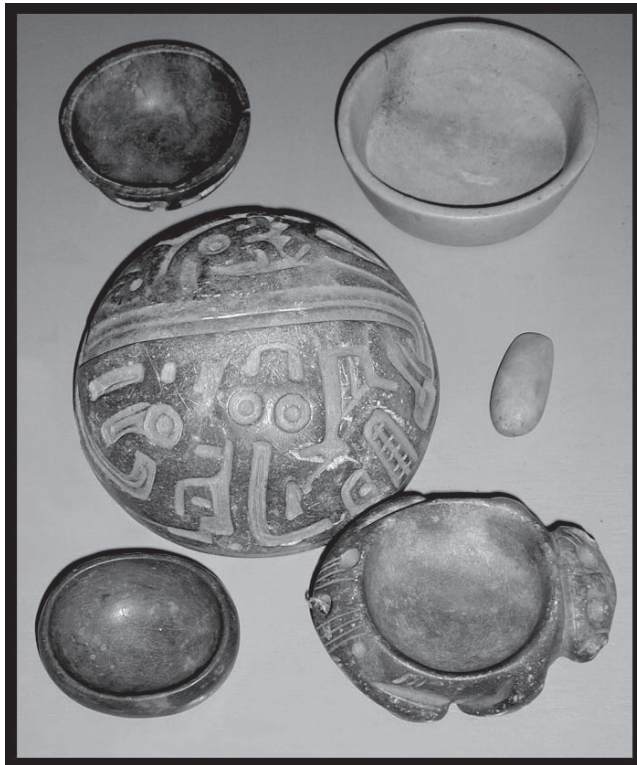


Figure 43.9. Fine, polished stone vessels of the Mayo-Chinchipe complex. (photo by Francisco Valdez)

The presence of Chinchipe style stone bowls has been documented from the southern Loja highlands, to the eastern Bagua lowlands (Shady and Rosas La Noir 1979). Perhaps these objects can be compared functionally with the polished stone mortars that have been associated with ethnographic shamanic practices and particularly with hallucinogenic snuff preparation and inhalation. They proliferate throughout the Chinchipe basin, taking the forms of ornitomorphic, zoomorphic and fitomorphic tropical forest species. Their presence in such a vast territory seems to express the use, and probable trade, of hallucinogens. Zeidler (1988) first identified and discussed these items in late Valdivia phase 8 contexts. The coastal specimens are mostly feline representations, but a large number of ornitomorphic figures are also frequent. We have photographed feline mortars, of presumed local origin, in at least two highland Loja private collections.

The stirrup spout bottles are a hallmark of several ancient Peruvian cultures, but one must remember that this specific vessel form was first reported in late Valdivia contexts at La Ermerenciana (Staller 1994: 384–386, 402–409), then in Machalilla (Meggers et al. 1965) and Cotocollao (Villalba 1988). These Middle Formative phases greatly influenced the south and central coast and northern highlands of Ecuador. The early dates associated with the context of the shaft tomb offerings place the Mayo-Chinchipe bottles at the very beginning of the sequence. It is interesting to note that the four examples found in the tomb have long tubular spouts, with a slightly beveled rim (Figure 43.10). This form does not resemble the Late Valdivia, Machalilla or Cotocollao examples, which have short stubby spouts with enlarged, flat or rounded rims.

Greenstone objects of personal adornment are the last set of distinctive symbolic items of the Mayo-Chinchipe complex. Literally thousands of beads, plaquettes, perforated or carved nuggets, sculpted pendants and medallions have been found in what can be called the “sacred” portion of the site. These were not only used as stringed bead paraphernalia, or as simple elements attached to embellish textile garments, but they were also generously used to cleanse, “sanctify,” or limit the ritual spaces. By far the most common greenstone is



Figure 43.10. Stirrup-spout bottles of the Mayo-Chichipe complex. (Francisco Valdez)

turquoise, followed by pseudo-malachite and other non-identified green mineral agglomerates. The source of the turquoise is still unknown and problematic. Turquoise is not very frequent in Ecuadorian sites. Only a few specimens have been reported in localities such as Cerro Narrío, Pirincay, San Isidro and La Tolita. In Peru, this greenstone is present at many coastal and highland sites since the Early Horizon, but its source is still uncertain. A few possibilities have been studied (Ruppert 1983) but results are still inconclusive. Some scholars think that a major source could be found in the Toquepala region, around the Chilean frontier, but the huge distance seems to preclude this possibility at such an early date. The great amount of turquoise found throughout the Chinchipe drainage suggest that other sources may be found on the eastern, dry valleys around the Utcubamba, Chinchipe, Marañón confluence.

The presence of exotic goods such as sea shells, turquoise, and fine-grained stones suggests that the people who frequented the Sta. Ana-La Florida site participated in a rather expansive sphere of interactions, both along an east-west axis, as well as to the north and south. At this point, we do not know the precise mechanisms involved in such interactions, but it seems obvious that the influential participants had already established early pan-regional connections. This is clearly suggested by the large number of similar engraved stone bowls, turquoise ornaments, and *Strombus* shells appearing in the local museums of San Ignacio, Jaén de Bracamoros, and Bagua, in northeastern Peru. It seems obvious that the people who inhabited the Mayo-Chinchipe drainage shared a common culture that was wide spread throughout the entire basin since the Early Formative. The ideological interaction involved would eventually contribute to the rise of the Andean high cultures.

ACKNOWLEDGMENTS Archaeological research in the Zamora Chinchipe province of Ecuador has been carried out under the Scientific Research and Technical Assistance Convention signed by France's Institut de Recherche pour le Développement (IRD) and Ecuador's Instituto Nacional de Patrimonio Cultural (INPC). The research team included Francisco Valdez, Jean Guffroy, Geoffroy de Saulieu, Julio Hurtado and Alexandra Yépez. Funding has been provided by IRD (UR092). Mineral analysis and identification was done by Dr. Bernard Gratuze (Laboratoire Ernest-Babelon, CNRS, Orléans).

REFERENCES

- Arellano, Jorge, 1994, Loma Pucara, a Formative site in the Cebadas Valley, Ecuador. *National Geographic Research and Exploration* 10 (1): 118–120.
- , 2000, Primeras evidencias del Formativo Tardío en la sierra central del Ecuador. In *Formativo Sudamericano*, edited by Paulina Ledergerber-Crespo, pp. 160–175. Abya-Yala, Quito.
- Athens, J. Stephen, 1995, Relaciones interregionales prehistóricas en el norte de los Andes: evidencias del sitio La Chimba, en el Ecuador septentrional. In *Perspectivas Regionales en la Arqueología del Surroccidente de Colombia y Norte de Ecuador*, edited by Cristóbal Gnecco, pp. 3–29. Ediciones de la Universidad del Cauca, Popayán.
- Bell, Robert, 1974, Investigation of the Inga Complex and Preceramic Occupations of Highland Ecuador. Final report to the National Science Foundation.
- Braun, Robert, 1982, Cerro Narrío reanalyzed: the Formative as seen from the Ecuadorian highlands. In *Primer Simposio de Correlaciones Antropológicas Andino-Mesoamericanas*, edited by Jorge G. Marcos and Presley Norton, pp. 41–99. Espol, Guayaquil.
- Bray, Tamara L., 1995, The Panzaleo puzzle: non-local pottery in northern highland Ecuador. *Journal of Field Archaeology* 22 (2): 137–156.
- Bruhns, Karen Olsen, 2003, Social and cultural development in the Ecuadorian highlands and eastern lowlands during the Formative. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 125–174. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- Burger, Richard L., 1992, *Chavin and the Origins of Andean Civilization*. Thames and Hudson, London.
- , 2003, Conclusions: cultures of the Ecuadorian Formative in their Andean context. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 465–486. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , Frank Asaro, Ernesto Salazar, Helen Michel, and Fred Stross, 1994, An initial consideration of obsidian procurement and exchange in pre-Hispanic Ecuador. *Latin American Antiquity* 5 (3): 228–255.
- Caldwell, Joseph R., 1964, Interaction spheres in prehistory. In *Hopewellian Studies*, edited by Joseph R. Caldwell and R. L. May, pp. 133–143. Illinois State Museum, Scientific Papers, No. 12. Springfield.
- Crespo Toral, Hernán and José María Vargas (eds.), 1977, *Historia del Arte Ecuatoriano*, Tomo 1. Salvat Editores Ecuatoriana, Quito.
- Cummins, Tom, 2003, Nature as culture's representation: a change of focus in Late Formative iconography. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 423–464. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Echeverría, José, 2004, *Las Sociedades Prehispánicas de la Sierra Norte. Una Aproximación Arqueológica y Antropológica*, Serie I, Perspectiva Histórica, Vol. 1. Universidad de Otavalo- Instituto Otavaleño de Antropología, Otavalo.
- Edmund, George A., 1965, A Late Pleistocene fauna from the Santa Elena Peninsula, Ecuador. *Life Sciences Contributions* 63: 21. Royal Ontario Museum.
- Guffroy, Jean, Napoleón Almeida, Patrice Lecoq, Chantal Caillavet, Francis Duverneuil, Laure Emperaire, and Bernadette Arnaud, 1987, *Loja Prehispanique*. Editions Recherche sur les Civilisations, Paris.
- Guinea, Mercedes, 1998, La metalurgia del cobre en la costa norte del Ecuador durante el periodo de integración. In *El Area Septentrional Andina. Arqueología y Etnohistoria*, edited by Mercedes Guinea, pp. 83–110. Biblioteca Abya Yala, 59. IFEA-Abya Yala, Quito.
- Helms, Mary, 1979, *Ancient Panama. Chiefs in Search of Power*. University of Texas Press, Austin.
- Holm, Olaf, 1966/67, Money axes from Ecuador. *Folk* 8–9: 136–143.
- , 1978, Hachas monedas del Ecuador. In *Actas y Trabajos del Tercer Congreso Peruano: El Hombre y la Cultura Andina*, edited by Ramiro Matos, pp. 347–361. Lima.
- , and Hernán Crespo T., 1980, Las culturas formativas. In *Historia del Ecuador*, 1:87–191. Salvat Editores, Barcelona.
- Issacson, John, 1994, Volcanic sediments in archaeological contexts from western Ecuador. In *Regional Archaeology in Northern Manabi, Ecuador, Vol. I. Environment, Cultural Chronology, and the Prehistoric Subsistence in the Jama River Valley*, edited by James A. Zeidler and Deborah M. Pearsall, pp. 131–140. Memoirs in Latin American Archaeology, 8. University of Pittsburgh.
- Jijón y Caamaño, Jacinto, 1949, Un vaso Thin Orange del país Caranqui, Ecuador. *American Antiquity* 14 (3): 226–228.
- , 1997 [1951], *Antropología Prehispánica del Ecuador*. Reprinted edition. Museo Jacinto Jijón y Caamaño, Quito.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, New York.
- Jones, Julie, 1979, Mochica works of art in metal: a review. In *Pre-Columbian Metallurgy of South America*, edited by Elisabeth P. Benson, pp. 53–104. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Lippi, Ronald, 2004, *Tropical Forest Archaeology in Western Pichincha, Ecuador*. Thomson/Wadsworth Case Studies in Archaeology, Wadsworth Publishing.
- , 1988, Paleotopography and phosphate analysis of a buried jungle site in Ecuador. *Journal of Field Archaeology* 15: 87–95.
- Lynch, Thomas and Susan Pollock, 1981, La arqueología de la Cueva Negra de Chobshi, *Miscelánea Antropológica Ecuatoriana* 1: 92–119. Museos del Banco Central del Ecuador, Guayaquil.
- Marcos, Jorge G., 1978, The Ceremonial Precinct at Real Alto: Organization of Time and Space in Valdivia Society. Ph.D. dissertation. Department of Anthropology, University of Illinois, Urbana-Champaign.
- , 1995a, El manejo del agua en el variado medio ambiente del área septentrional andina a partir del tercer milenio AC. In *Cultura y Medio Ambiente en el Area Andina Septentrional*, edited by Mercedes Guinea, Jean François Bouchard, and Jorge G. Marcos, pp. 129–164. Biblioteca Abya Yala, 2. Abya Yala, Quito.
- , 1995b, El mullo y el pututo: la articulación de la ideología y el tráfico a larga distancia en la formación del estado Huancavilca. In *Primer Encuentro de Investigadores de la Costa Ecuatoriana en Europa. Arqueología-Etnohistoria, Antropología Sociocultural*, edited by A. Alvarez, Silvia Alvarez, Carmen Fauría and Jorge G. Marcos, pp. 97–142. Ediciones Abya Yala, Quito.

- Mayer-Oakes, William J., 1986, *El Inga, a Paleo-Indian site in the Sierra of Northern Ecuador*. Transactions of the American Philosophical Society 76: 1–235.
- Meggers, Betty, Clifford Evans and Emilio Estrada, 1965, *Early Formative Period in Coastal Ecuador: The Valdivia and Machalilla Phases*, Smithsonian Contributions to Anthropology, 1. Smithsonian Institution, Washington, D.C.
- Murra, John V., 1975, El tráfico de mullu en la costa del Páccifico. In *Formaciones Económicas y Políticas del Mundo Andino*, by John V. Murra, pp. 255–267. Instituto de Estudios Peruanos, Lima.
- Paulsen, Allison, 1974, The Thorny Oyster and the Voice of God. *Spondylus and Stombus* in Andean prehistory. *American Antiquity* 39 (4): 597–607.
- Peterson, Emil, 1984, Morteros ceremoniales: the early development and distribution of a decorated stone bowl tradition in north-west South America. In *Social and Economic Organization in the Prehispanic Andes*, edited by David L. Browman, Richard L. Burger, and Mario A. Rivera, pp. 21–31. BAR International Series, 194. Oxford.
- Ponce Rojas, Pedro, 1985, La Huaca Huayurco, Jaén. In *Historia de Cajamarca, Vol. 1, Arqueología*, compiled by Fernando Silva Santiesteban et al., pp. 181–186. Instituto Nacional de Cultura, Cajamarca.
- Porras, Pedro I., 1978, *Arqueología de la Cueva de los Tayos*. Ediciones de la Universidad Católica del Ecuador, Quito.
- , 1980, *Arqueología del Ecuador*. Editorial Gallo capitán, Otavalo.
- Piperno, Dolores R. and Karen E. Stothert, 2003, Phytolith evidence for Early Holocene *Cucurbita* domestication in southwest Ecuador. *Science* 299 (5609): 1054–1057.
- Rehren, Thilo and Mathilde Temme, 1994, Pre-Columbian gold processing at Putushio, south Ecuador: the archaeometallurgical evidence. In *Archaeometry of Pre-Columbian Sites and Artifacts*, edited by David A. Scott and Pieter Meyers, pp. 267–284. Getty Conservation Institute, Malibu, CA.
- Ruppert, Hans, 1983, Geochemische Untersuchungen an Türkis und Sodalith aus Lagerstätten und präkolumbischen Kulturen der Kordilleren. *Berliner Beiträge zur Archäometrie*. 8: 101–210. Berlin.
- Salazar, Ernesto, 1983, El hombre temprano en el Ecuador. In *Nueva Historia del Ecuador*, edited by Enrique Ayala Mora, Vol. 1, pp. 73–128. Corporación Editora Nacional-Grijalbo, Quito.
- Salomon, Frank, 1980, *Los Señores Émicos de Quito en la Época de los Incas*. Colección Pendoneros, 10. Instituto Otavaleño de Antropología, Otavalo.
- Shady, Ruth and Hernán Rosas La Noire, 1979, El Complejo Bagua y el sistema de establecimiento durante el Formativo en la sierra norte del Perú. *Nawpa Pacha* 17: 109–142.
- Staller, John, 1994, Late Valdivia Occupation in Southern Coastal El Oro Province, Ecuador: Excavations at the Early Formative Period (3500-1500 B.C.): Site of La Ermerenciana. Ph.D. dissertation. Department of Anthropology, Southern Methodist University, Dallas.
- Stothert, Karen E., 1985, The preceramic culture of coastal Ecuador. *American Antiquity* 50: 613–637.
- , 1988, La prehistoria temprana de la Península de Santa Elena: Cultura Las Vegas. *Miscelánea Antropológica Ecuatoriana*. Serie Monográfica, 10. Museos del Banco Central del Ecuador, Guayaquil.
- Temme, Matilde, 1982, Excavaciones en el sitio precerámico de Cubilan (Ecuador). *Miscelánea Antropológica Ecuatoriana*. 2: 135–164. Museos del Banco Central del Ecuador, Guayaquil.
- Valdez, Francisco, 1987, *Proyecto Arqueológico “La Tolita.”* Museo del Banco Central del Ecuador. Editora Luz de América, Quito.
- , 1992, Symbols, ideology, and the expression of power in La Tolita, Ecuador. In *The Ancient Americas: Art from Sacred Landscapes*, edited by Richard Townsend, pp. 229–243. The Art Institute of Chicago.
- , 2003, Peuplement initial en forêt tropicale humide. La côte nord-ouest de l’Amérique du Sud. In *Peuplements Anciens et Actuels des Forêts Tropicales*, edited by Alain Fromment and Jean Guffroy, pp. 267–283. IRD Éditions, Paris.
- , 2006, Drenajes, camellones y organización social: usos del espacio y poder en La Tola, Esmeraldas. In *Agricultura Ancestral: Camellones y Albarradas. Contexto Social, Usos y Retos del Pasado y del Presente*, edited by Francisco Valdez, pp. 189–223. Abya Yala, IFEA, IRD, BCE, Quito.
- , Jean Guffroy, Geoffroy de Saulieu, Julio Hurtado, and Alexandra Yépez, 2005, Découverte d’un site cérémoniel formatif sur le versant oriental des Andes. *Comptes Rendus de l’Académie des Sciences de l’Institut de France. Palevol* 4: 369–374.
- Villalba, Marcelo, 1988, Cotocollao: una aldea formativa del valle de Quito. *Miscelánea Antropológica Ecuatoriana*. Serie Monográfica 2. Museos del Banco Central del Ecuador, Quito.
- , 2001, Canasteros o comerciantes. In *Catálogo de la Sala de Arqueología*, pp. 58–70. Museo Nacional del Banco Central del Ecuador, Quito.

Zeidler, James A., 1988, Feline, stone mortars, and Formative Period interaction spheres in the northern Andean area. *Journal of Latin American Lore* 14 (2): 243–283.

_____ and Deborah M. Pearsall (eds.), 1994, *Regional Archaeology in Northern Manabi, Ecuador, Vol. 1. Environment, Cultural Chronology, and the Prehistoric Subsistence in the Jama River Valley*. Memoirs in Latin American Archaeology, 8. University of Pittsburgh.

Cultural Boundaries and Crossings: Ecuador and Peru

JEAN GUFFROY

INTRODUCTION

The area that is bounded by the 2nd and 6th degrees of latitude South—basically Guayaquil-Cuenca in Ecuador to Lambayeque-Bagua in Peru (Figure 44.1)—has traditionally been seen as an environmentally unattractive buffer zone, which formed an anthropogeographic barrier and projected Ecuador (the North Andes) and Peru (the Central Andes) into different trajectories of socio-cultural development (Burger 1984). However, surveys conducted over the last thirty years on both sides of the modern Ecuadorian-Peruvian border now allow scholars to reconstruct a more complex situation, in which there were significant interactions among many regional cultures living in numerous environments. This paper presents an interpretation of this region in terms of cultural boundaries and cultural crossings.

THE ENVIRONMENTAL SETTING

The region is characterized by a lowering of the Cordillera and a broken topography. Climate is affected by the inter-tropical convergence and the ENSO phenomenon (El Niño); the region is intermediate between tropical and Andean conditions. The northern part of the coast is covered by mangrove, while the southern part is composed of sandy beaches and cliffs, moving further south into a large inland plain—the cactus desert of Sechura. The highlands correspond to the south frontier of the páramo Andes, with particularities linked to the lower altitude. The north western portion of this territory is covered by forests of *Erythrina* (ceibo) and *Bombax* (kapok tree or related to it), while the drier sectors support a thorny vegetation with *Acacia*, *Codiaeum Variegatum* (croton) and cacti. The eastern slopes show a mixture of rain forests and in some parts, such as the Bagua Valley in the Marañón drainage, a drier steppe similar to the western slopes.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008



Figure 44.1. Map of the region and locations of the main sites in the Preceramic and Formative periods discussed in this chapter. (Jean Guffroy)

THE PRE-CERAMIC PERIOD

While the occupation of the region during the pre-ceramic period is still poorly known, some discoveries attest an early occupation of different scattered ecosystems. Near the coast, to the north of the Chira/Catamayo River, Richardson (1978) recovered evidence of human occupation beginning in the tenth millennium BC; the remains indicate the consumption of mollusks specific to mangrove swamps. The presence of this type of vegetation south of its modern limit is confirmed by the presence of a similar fauna in the early occupations (sixth millennium BC) found, further south, in the Illescas Peninsula (Cárdenas 1978). In both cases, the proximity of the mangrove and a rocky landscape seems to have provided a relatively stable economic base, allowing some sedentism. The stone industry of this Amotape-Siche complex (9500-3000 BC [Note 1]) was manufactured by direct percussion. It consists of retouched and used flakes, pointed and notched tools, and denticulates. This assemblage shows similarities with the Las Vegas complex of the Santa Elena Peninsula in Ecuador (see Stothert 1985).

On this coast, an important environmental change occurred around 3000 BC with the northward retreat of the mangrove vegetation. While the stone industry of the new Honda complex (3000-2000 BC) shows little change, the presence of stone axes and mortars in the inland site of Estero and stone bowls associated with burials in the Illescas Peninsula probably reflects social and technological evolutions linked to the introduction of horticulture. A radiocarbon date of 4805 ± 130 b.p. [Note 2] is associated, in the Siche site,

with a fragment of squash. The composition of coastal middens suggests that the economy remained mainly based on the gathering of mollusks, fishing, and hunting of sea and terrestrial mammals. In the site of Avic, in the Illescas Peninsula, Cárdenas (1978) found a low platform structure with an access ramp, containing whale vertebrae, which seems to attest the local emergence of public architecture.

The second evidence of an early occupation of the region was provided by Temme (1982) in the páramo sites of Cerro Cubilan (3,100 masl), in the high Oña Valley, in the province of Loja, Ecuador. The main settlement, occupied during the ninth millennium BC ($10,500 \pm 130$ b.p.), has a distribution of stone remains within an area measuring $7\text{ m} \times 10\text{ m}$, in which there is an alignment of seven hearths of different sizes. The stone industry shows great diversity and quality: there are discoidal and prismatic nuclei, bifaces, projectile points, scrapers, knives, and perforators, made in a variety of raw materials. Some isolated projectile points have been found in other parts of the region, such as in the Catamayo, Pindo and Piura valleys, but the extension, density and evolution of these hunter-gatherers remain unknown.

Pre-ceramic occupations are documented in the dry thorny and tropical forests of the upper Zaña basin, on the western slopes of the north Peruvian Andes (Dillehay et al. 1992). In the Nanchoc Valley, the high density of settlements indicates the development of a complex preceramic society between 6000 to 4000 BC. This tradition is characterized by the presence of a variety of ecologically conditioned sites with a semi-sedentary to sedentary way of life. The stone industry, with its unifacial tools, shows general similarities with the Amotape-Siches and Las Vegas assemblages, but is singularized by the existence of numerous ground stone implements. In the domestic sites, the presence of several vegetal species indicates the importance of plant exploitation and probably an incipient horticulture. The architectural complexity of the two earth mound structures found in the Cementerio de Nanchoc site proves the existence of specialized public settlements. Dillehay and his collaborators suggest the practice of ceremonial and religious activities, founded on duality, and of economic activities, based on the production and distribution of lime which can be used as an extractive agent for coca leaves.

Late pre-ceramic vestiges have been recovered at the Pandanche site, in the north Cajamarca highlands (Kaulicke 1981) and at the Manachaqui rock shelter, located in the rainy forest, on the edge of the páramo, in the high Montecristo River of the Huallaga drainage (Church 1996). The Pre-Lavasen and the Lavasen occupations at Manachaqui are associated with radiocarbon dates of 4280 ± 110 b.p. and 3520 ± 100 b.p., respectively. The core flake industry includes projectile points, scrapers and burins. Faunal remains, showing marks of hunting and butchering of a large spectrum of local fauna, and seeds were also recovered. The beginning of the Lavasen phase is characterized by the introduction of the cultivation of puna tubers and by an increase in the consumption of small animals.

EARLY FORMATIVE SOCIETIES (3000-1500 BC)

There is a clear overlap between the late pre-ceramic groups established in the south of our region and the Formative societies appearing, at the same time, in the northern and eastern areas. In the coastal valley of Arenillas (province of El Oro, Ecuador), ceramic groups representing a southern extension of the Valdivia culture (see Chapter 24 in this volume) are preferentially located along the lower river during the Valdivia III and IV phases (around 2600 BC). Later, there is evidence of an extensive occupation of the area,

with the existence of hamlets and ceremonial sites, mainly situated along the ancient shoreline. The large site of La Emerenciana is associated with radiocarbon dates between 3860 ± 50 b.p. and 3361 ± 246 b.p. (Staller 2000) and was mainly occupied during the Valdivia VII–VIII phases (1950–1450 BC). The monumental architecture consists of two low elliptical and asymmetrical platforms, containing prepared floors with evidence of resurfacing and rebuilding episodes, and human burials. Regarding its technological and stylistic attributes, the pottery of this Jelí phase is similar to the late Valdivia pottery of the northern region, but also presents some forms (bulbous stirrup-spout bottles, pedestal bowls) and decorative techniques (parallel slipped bands, contrasting surface, fugitive slips) that could correspond to an evolutionary stage towards the Machalilla style.

At the same time, pottery appears in Tumbes Valley (San Juan phase: 3780 ± 130 b.p.) (Izumi et al. 1966) and on the Piura coast (Piura I: 3610 ± 145 b.p.) (Richardson 1987). This pottery shows poor firing and poor surface finish, and a reduced range of forms and decorations.

In the Catamayo Valley of the Loja highlands in Ecuador (Guffroy 2004), the Catamayo A ceramic tradition (3480 ± 90 b.p.) is probably linked with the arrival of sedentary cultivators in this dry valley of the western slopes, at the beginning of the second millennium BC. The settlements are located around the fluvial plain, upon terraces and mounds, which contain the stone foundations of rectangular houses. The pottery shows a small range of forms (high necked jars, flat based bowls) and decorations (incisions, punctuations) that are clearly different from the Valdivia assemblages.

On the eastern slopes of the Andes, the Santa Ana-La Florida site, located on a terrace of the Valladolid River, in the basin of the high Chinchipe, is evidence of a very early and complex cultural tradition (see Chapter 43 in this volume). Different pre-Columbian occupations are present at this site. The ceramic sherds coming from the older occupation, associated with a radiocarbon date of 4300 ± 40 b.p. (Valdez et al. 2005), display some stylistic characteristics that could represent an antecedent for Catamayo A pottery. The main Formative Period building consists of a buried structure surrounded by a series of retaining walls, and covered with a stone floor. The western portion of this underground complex contains levels of construction associated with circular clay structures, burnt floors and stone deposits. The eight radiocarbon dates associated with this structure range between 4000 ± 40 b.p. and 3660 ± 90 b.p. Near to the center of the structure, two important features have been excavated: a stone-lined hearth situated at the end of a spiral wall, and what is probably a shaft tomb containing ceramic and stone offerings. The tomb is dated to 3700 ± 40 b.p.

The ceramic offerings recovered in the tomb include several fine ceramic vessels, discussed and illustrated by Francisco Valdez in Chapter 43 in this volume. Here, I reiterate his evidence for coca leaf chewing and the presence of stirrup-spout bottles, which occur at Santa Ana-La Florida several centuries before their appearance in the (southern) Peruvian Pacopampa, Cupinisque, and Chavín cultures or the (northern) Ecuadorian Machalilla and Cotacollao cultures.

The most noteworthy character of Formative Period Santa Ana-La Florida culture is the presence of a great quantity of lapidary art, such as: ordinary plates and bowls made of a grey andesite or basalt; finely decorated bowls and animal shaped mortars made of reddish stone; and a great quantity of turquoise and pseudo malachite items of adornment. The rich iconography of the bowls, mortars and pendants includes representations of birds, snakes, feline faces and zoo-anthropomorphic beings (see Figure 43.9 in Chapter 43). The avian and snake depictions are very similar to those of Late Pre-ceramic Huaca Prieta and

La Galgada textiles in Peru. Similar stone items were found in other sites of the Chinchipe Valley and probably were produced at least until the late Formative Period.

Despite social and technological differences, the resemblance of the Santa Ana-La Florida, Huaca Prieta and La Galgada iconographies probably reflects the existence of ideological interactions and exchange networks between these different areas. These elements also attest the early appearance, in the eastern slopes, of religious representations and ritual activities that formed part, several centuries later, of the basic components of the Cuspinique and Chavín religion(s) in northern Peru.

In the south of our region, in the Chotano basin of north highland Peru, Pandanche A pottery (3440 ± 340 b.p.) presents singular characteristics, probably due to diverse influences (Kaulicke 1981). Several forms and decorative techniques, such as brushing or nubbins, have parallels in the Valdivia and Machalilla northern (Ecuadorian) traditions, while the carinated bowls and the neck less jars are more reminiscent of early ceramics from the tropical forest and the north coast. After 1500 BC, this pottery tradition is also present, with regional particularities, to the east (Morelilla phase at Bagua; Manachaqui phase in the Huallaga basin), in the north Peruvian highlands of Cajamarca (Early Huacaloma, La Conga), and in the north coastal Peruvian Jequetepeque and Chicama valleys (Montegrando and Early Cupinisque).

MIDDLE AND LATE FORMATIVE SOCIETIES (1500-300 BC)

New technological and cultural features appeared in different sectors of the region around 1500 BC. These have been interpreted in many ways: as the possible consequence of climatic events (a long drier period or an increase in the occurrence of El Niño); as the result of population migrations and trade; as the effect of the cultural decline of the old Formative societies. Whatever the causes of these cultural changes were, the period was marked by a progressive increase of population, associated with the settlement of areas where an early Formative occupation was unknown or scarce, and by the development of some great cultural and stylistic traditions.

In the northern (Ecuadorian) part of the region, new forms of pottery (carinated bowls and jars, short necked jars, stirrup-spout bottles) and new decorative features (red banded, engraved, incised, appliqué and modelling decorations) appeared in a wide area that covers the coast (Machalilla, Paita 2), highlands (Early Cotacollao, Cerro Narrio I–II, Early Challuabamba, Catamayo B), and part of the eastern slopes (Gomis 1999). These styles show change around 1000-950 BC, with the production of a larger variety of forms and decorative modes (iridescent painting, negative resist, contrasting surface treatment, zoomorph modelled). This red on buff tradition (Chorrera, Cerro Narrio III, Pirincay, Catamayo C), although presenting some common basic features, displays important local particularities, which differentiate each valley or region (Guffroy 2004). Therefore, a small quantity of imported sherds was recovered in almost all of them.

While several large and specialized settlements of this period are found in the coastal plains, the highland sites are generally small and without monumental architecture. The common constructions consist of quadrangular or semi-circular stone bases, supporting daub walls. However, a structure probably used for rituals, was excavated by Max Uhle (1922) in the high Catamayo Valley. It consists of a white and red clay platform that contained a great quantity of *Spondylus* shells, as well as stone and shell beads. Seashells, mainly whole or worked *Spondylus*, were found in a majority of the highland sites, which



Figure 44.2. Jar in the Paita style. (Jean Guffroy)

seem to be located preferentially in strategic areas for the exchange of goods and for cultural interactions.

The characteristic Paita ceramics, recovered along the Piura coast of northern Peru, consist of short-necked and carinated jars with incised or red on buff decorations (Figure 44.2) (Lanning 1963; Richardson 1987). The fishermen settlements are situated on mounds located on the beach (Colán) or on the cliff (Colán, Paita Yacila). Some of these sites present a great extension, probably due to a long sequence of occupation. Semicircular structures of stones, with a diameter of 6 m, were found in the Yacila site (Kaulicke 1998). An evolution takes place at about 900 BC (Paita 3), with the use of new decorative techniques such as post fire painting.

Besides this red on buff tradition, another group of Peruvian ceramics is characterized by the application of white, pink, grey or black paint upon red slipped hemispherical bowls and necked jars. This decorative technique appears in the Tumbes Valley (Pechiche), in the Piura Valley (Ñañañique Local A) and, to the east, in the Huancabamba and Bagua areas (Bagua I). It is also present in the Cajamarca region as a minor style. These decorations can be combined with incisions for the representation of complex symbolic motifs. They are associated with various ceramic forms and appear in each region beside other, different styles (Pechiche incised in Pechiche, Local B style in Cerro Ñañañique, polychrome wares in Bagua and Pacopampa). This distribution attests the existence of strong interactions between groups established in different ecological environments. This tradition is linked in several places with the construction of monumental architecture.

The occupation of the Pechiche site, located upon a terrace of the Tumbes River, is bounded by two dates of 2800 ± 120 b.p. and 2320 ± 130 b.p. (Izumi et al. 1966), reflecting a long occupation during the Late Formative period. Recovered in addition to the ordinary wares was a group of beakers and bowls decorated with mythological representations. One of these images looks like the feline god of the Cuspinique/Chavín styles (see Izumi et al. 1966: plate 28 #11, #12), and some designs are reminiscent of the beakers of the Ñañañique Local A style. The other image is a bizarre human face with swollen eyelids and a square

mouth, which bears some resemblance to the figurines coming from La Plata Island, in the Gulf of Guayaquil.

In the Cerro Ñañañique site (Guffroy et al. 1995), the first phase of occupation probably began in the eleventh century BC (2890 ± 40 , 2850 ± 50 b.p.) and ended near 750 BC. At this time, the settlement consisted of three great platforms surrounded by small square constructions, showing resemblance to the architecture of the Montegrande site in the Jequetepeque Valley. The Ñañañique pottery assemblage contains a complete set of jars, bowls, and beakers, made in the local A ware, and a group of brown bowls (Local B ware), often decorated with cross-hatched and incised motives filled with red pigments. This last style can be linked to the late Valdivia and Ayangue incised northern styles, but also appears on bowls and bottles of the Cupisnique area. Each style displays its particular interpretation of some common designs. The most popular is a pattern of concentric diamonds and trapezoids, and an ideographic image probably depicting a zoomorphic monster. In the same levels sherds of coastal Paita ceramics were recovered, and other sea remains, proving arrival and residence of fishermen as well as a regular trade between the two sectors. Other sherds come from a greater distance and are characteristic of the northern (Catamayo, Chorrera), eastern (Bagua, Pacopampa) and southern areas (Zaña, Jequetepeque).

Burnt fragments of human bones and skulls were found in several sectors. They were often mixed with ashes, animal bones and ceramic sherds.

In this phase, and even more so during the next one, the importance of the Cerro Ñañañique site appears to be linked to its geographic position in the corridor of the Piura River, at the west to east crossroads. The presence, at all levels, of camelid bones probably testifies to the passing of Peruvian caravans. Interestingly, *Spondylus* is rare at the site.

The great changes that occurred around 750 BC (Panecillo phase: 2640 ± 160 b.p., 2540 ± 250 b.p., 2380 ± 160 b.p.) probably reflected important social and ideological evolutions occurring simultaneously in the Cajamarca highlands and adjacent coastal valleys (Onuki 2001). These changes were marked in Cerro Ñañañique by a growth and rebuilding of the settlement, following a U-shaped model (Figure 44.3). The platforms were raised and the central place was surrounded by terraces and buildings of various types. Some of the new constructions display several levels and contain stairs and columns made of clay. At the same time, an important change in ceramic forms and iconography occurred. A hexagonal pattern, which represents an evolution of the concentric diamonds and trapezoids motif of the Ñañañique phase, was frequently reproduced on the Panecillo cups (Figure 44.4). It is also found on ceramics, stone mortars, and gold ornaments coming from Pacopampa, Huacaloma and Kunturwasi (Onuki 2001). In each area, the figures placed within the hexagon are different. Paita pottery is present in the same proportion, while the quantity of ceramics imported from the south increases. These changes are also related to a higher density of population and probably correspond to a flourishing period of development in the entire region.

In the Bagua area, the Bagua assemblages (2880 ± 135 b.p.) (Shady 1999) present a mixture of white on red ceramics and incised ceramics, with an iconography resembling the Ñañañique patterns; polychrome ceramics resembling the Pacopampa style; and some northern influences. Two great settlements with monumental architecture and mural paintings (Tomepanda, Los Peroles) attest the existence of ceremonial centers in this area.

The importance of cultural interactions in the eastern highlands is marked by the appearance of northern characteristics on the pottery of the Suitacocha phase (2560 ± 100 , 2450 ± 90 b.p.) in Manachaqui Cave (Church 1996), and also by the production in the

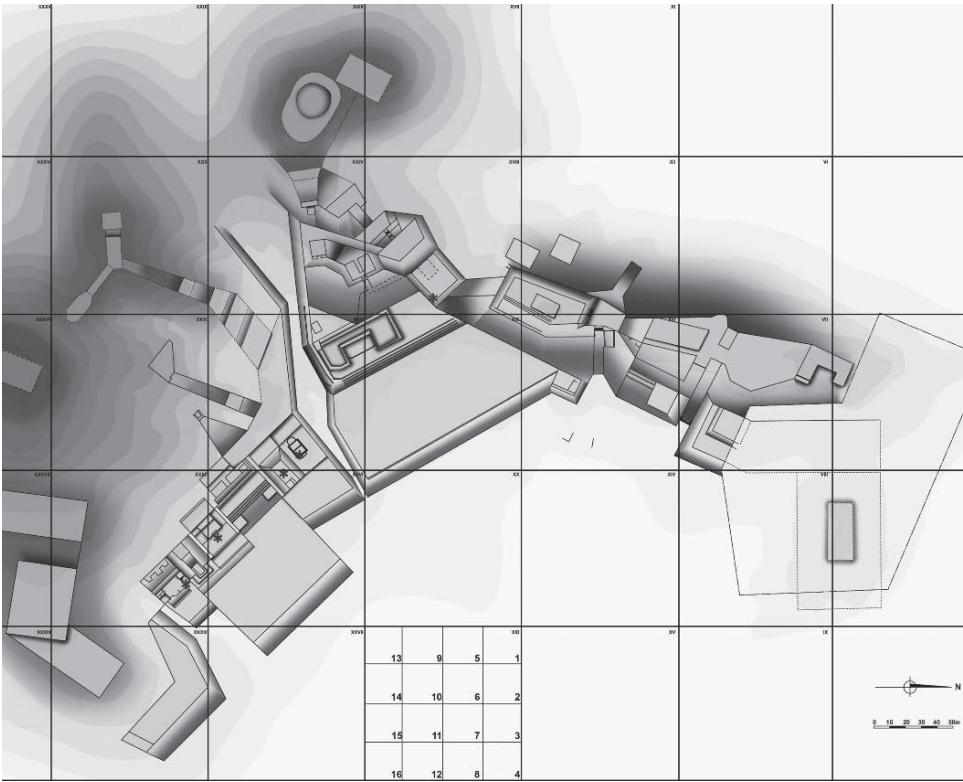


Figure 44.3. The Cerro —Ñañañique settlement during the Panecillo phase (eighth through fifth centuries BC). (Jean Guffroy)



Figure 44.4. Engraved beaker showing the typical pattern of the Panecillo phase. (Jean Guffroy)

Catamayo Valley (Catamayo D, 600/300 BC) of neck less jars and polychrome bowls with a complex iconography, looking like the Bagua/Pacopampa styles.

The existence of exchanges and influences between the southern and northern portions of the region are also reflected by the presence of Cupisnique sherds in the Chal-luabamba site (Gomis 1999); by the similarities between some Cupisnique and Chorrera ceramics; and by the use of ceramic stamp seals. However, overall there is a great



Figure 44.5. Painted and modelled jar characteristic of the Vicús-Vicús style. (Jean Guffroy)

difference in the iconographic and probably religious aspects between the omnipresence of feline representations in the Cupisnique area and Cajamarca highlands, and their scarcity in the northern cultures, where avian figures are much more frequent.

New changes affect the entire region around 500 BC. They may reflect a climatic downturn resulting from the occurrence of strong El Niño events, which produced damage and severe erosion. But historical events and social problems also may have promoted the decline or collapse of the old cultural traditions and polities.

In the Piura Valley, the public center of Cerro Ñañañique was abandoned, probably after the deliberate burning of some of the constructions. But this destruction does not seem to affect the domestic settlements, which remain inhabited during the La Encantada phase (500-300 BC), marked by a new increase of the population. The ceramic assemblage is characterized by a reduction in the diversity of forms and decoration and by the disappearance of most parts of the previous iconography. During this La Encantada phase the more popular forms are a short-necked jar with an internal rim and a bowl with a bevelled rim and incised motifs arranged in a band. The same forms and decorations, including negative designs, were produced on the coast during the Sechura A phase (Lanning 1963). The hexagonal pattern of the Panecillo phase disappears and the other designs show a great schematization. Although the classic Early Horizon circles and circle dots patterns are not frequent in the Piura Valley, several ceramics characteristic of the Early Horizon were recovered in this zone. In Loma Macanche, near Morropón, rich burials of this period were recently looted

(Kaulicke 1998). They contained sumptuous gold ornaments, showing some resemblances with the Chongoyape gold items (see Burger 1992: figs. 223–224). This seems to confirm that the southern influences were maintained and that local hereditary elites were emerging. Monumental architecture, today destroyed, was also present in the Loma Macanche site. Other public centers may have existed in various sectors of the valley, as in Cerro Ñañañique where a small temple was erected near the old public settlement. These features could reflect an important evolution of the social organization, characterized by a weakening of the old religious structures, by a closer relationship between the coast and the middle Piura Valley and, possibly, by the emergence of hereditary powers.

The Bagua ceramics corresponding to the La Peca phase (600–400 BC) (Shady 1999) also show the importance of the influences coming from the Early Horizon cultures, but bear few similarities with La Encantada style pottery. Further east, the undated tradition of Chambira (Morales 1992) presents a distinct ceramic assemblage with a high frequency of bottles and clay figurines showing a cranial deformation. The nature of its relations with the neighbouring cultures remains unknown.

REGIONAL DEVELOPMENTS (300 BC–AD 600)

Around 300 BC, new evolutionary developments mark the end of the Formative Period. The same form of high necked jar with a thickened rim painted in red, formerly characteristic of the Catamayo ceramics, appears in the highlands (Chapica phase of the Piura Valley, Pacopampa C2, Layzón) and on the eastern slopes (Tacana and Cerezal phases in the Chinchipe drainage; El Salado in Bagua; Colpar in the Huallaga). In the numerous Chapica sites located in the middle Piura Valley, this material was recovered mixed with another component, characterized by the presence of neck less jars decorated with wide incisions. This last style has similarities with the Castillo incised style of the Salinar phase in the Virú Valley, and with some ceramics produced in the Lambayeque area. The presence of these two wares, showing different influences, can reflect the existence of several population groups who settled in the area for strategic or economic purposes.

In the Bagua area, the Salado phase is also marked by the presence of foreign elements, which may have their origin in the distant east—in the Amazonian Saladoid or Barrancoid traditions. The burial deposits from the Huayurco mound, composed of entire and broken stone bowls and numerous seashells, could correspond to this phase (Shady 1999; see Chapter 43 in this volume). This period seems characterized, in several of the southern/Peruvian sectors, by the existence of conflicts and movements of population. In the northern/Ecuadorian areas, change appears more gradual, with a general tendency towards an increase of the number of settlements and a diversification of the ceramic styles. This period also corresponds to the introduction of llamas in the south Ecuadorian highlands, well documented in the site of Pirincay (Bruhns et al. 1990), and, in several areas, to the progressive development of metallurgy.

On the Tumbes and Machala coast, the Garbanzal/Jambelí style (Izumi et al. 1966) represents an evolution of the previous white on red style, and the appearance of new forms, such as high pedestal cups (composteras), which are linked to contemporaneous coastal Ecuadorian cultures. Far east, in the provinces of Loja and Zamora, several ceramic styles (Catamayo, Cariamanga, Catacocha, Tacana) are located in different ecological zones and probably associated with distinct levels of agricultural production and social

organization (Guffroy 2004). On the Piura coast, the Sechura ceramics, recovered in small coastal hamlets and some large inland villages, bear great similarities to Jambelí ceramics and with the Vicús domestic pottery of the middle Piura Valley. However, the typical Vicús bottles, which are more sophisticated, are unknown in the other areas.

The development of metallurgy is clearly demonstrated by the great quantity of gold and copper items recovered during the looting of the deep shaft tombs from several large funerary mounds located near Cerro Vicús (Kaulicke 1991). Ceremonial mounds, built up with wattle and daub or adobes, as well as residential centers were scattered throughout the middle Piura Valley. Two styles can be discerned within the modelled bottles: the Vicús-Vicús style (Figure 44.5), decorated with white, white and black, or negative designs upon a red slip, and the Vicús-Moche style, closely resembling Moche pottery in valleys further south (on Moche see Chapter 36 in this volume). The Vicús-Vicús style presents some resemblances with the contemporary Ecuadorian traditions; Vicús-Moche seems to indicate the installation of southern (i.e., Moche) population in the area. Southern influences are also marked by the presence of Cajamarca, Salinar and Gallinazo ceramics that gain more importance during the late phase C, after the third century AD (Kaulicke 1991). In the nearby Frías Valley other rich burials, which contained a great quantity of gold items, have been looted. Some of these Frías objects are characteristic of La Tolita culture on the Esmeraldas coast of Ecuador. Other funerary offerings dating to this period and discovered in the provinces of Loja and Azuay confirm the rise of local powers and their involvement in the long-distance trade of sumptuary goods.

LATE PRE-COLUMBIAN CULTURES AND THE INCA HORIZON (AD 600–1532)

More change happened around AD 600–700. In the middle Piura Valley, the Campana phase (AD 600–900) is characterized by a relative cultural continuity as well as the appearance of some new features. The frequency of anthropomorphic high-necked jars and the presence (in private collections) of ceramics of the Middle Horizon styles seem to document the spread of new southern (Peruvian) influences into this region. Later, the Piura-Tallán assemblages (Lanning 1966; Richardson 1987) are present within a large area, covering the coast as far as Tumbes and a great part of Piura province. These assemblages are characterized by the production of small jars with loop handles, and by white on red and paddle stamping decorations (Figure 44.6). The presence inside several Tallán tombs excavated in Cerro Ñañañique (Figure 44.7) of double-T shaped copper ingots, similar to those found in the Lambayeque region, seems to indicate the existence of cultural relations and possibly trade with the Sicán groups. Later again, during the Piura 3 phase (AD 1100–1450), the appearance of fired black wares and mold-made pottery attest Chimú influence in north westernmost Peru (Richardson 1987). The kind of control achieved in this territory by the southern (Peruvian) polities is still unclear, although some distinctiveness and independence is probable. For the first time, several great ceremonial and public centers—composed of adobe constructions, residence compounds and cemeteries—were built in several parts of the low Chira/Catamayo (Paredones, Tamarindo, Chacacala) and low Piura basins (Narihuala). Such centers are also present in the middle and high Piura Valley.

Around the seventh or eighth century AD an important rupture, marked by the disappearance of the old cultural features, occurred in eastern Loja province, such as in several



Figure 44.6. Small jar of the Tallán-Piura style. (Jean Guffroy)



Figure 44.7. Tallán phase burial containing copper ingots, from Cerro —Ñañañique. (Jean Guffroy)

other sectors of the eastern slopes (basins of the Chinchipe, Zamora, Upano, Paztaza, Chambira rivers). It coincides with the arrival in the area of new populations using corrugated wares (Guffroy 2004). They were known as the Paltas, the Calvas and the Malacatos in Loja, and as the Bracamoros, the Xorocas and Xibaros in the east, and probably belonged to the Jívaro linguistic family. On the whole, these groups were characterized by poor technological development, great autarchy and bellicosity. Their arrival should have produced a relative collapse of relations between their southern and northern Andean neighbours. Nevertheless, trade probably remained steady in the western and northern areas, between the Tallán and Chimú groups, the Huancavilcas of the Machala coast and the Cañaris of the provinces of Azuay and Cañar.

Around AD 1470, the Inca conquest affected the whole region, with the exception of a large part of the eastern slopes. Inca policy is most apparent in the highlands, where the main Inca roads and several monumental settlements designed for strategic and economic purposes were located. The cultural impact of the Inca occupation differed from one area to another, depending on the intensity of the relation and proximity to the newcomers.

CONCLUSION

The intermediate position of this region and its environmental particularities profoundly influenced its cultural developments. However, the archaeological remains thus far known do not evoke an undeveloped buffer area, but rather a territory involved in strong interactions with various neighbouring regions.

During the pre-ceramic period, several cultural expressions linked to wide-scale pan-Andean traditions are underwritten by the exploitation of a variety of ecosystems. While the beginning of agricultural practices is not yet well known, fully developed Formative societies appear early in the coastal and eastern sectors. The presence, in the Mayo-Chinchipe Valley, during the third millennium BC, of items and iconography resembling the later Cupisnique and Chavín manifestations sheds important new light on the history of emergence of the Andean religions. Further, they are evidence of strong interactions and exchange between groups settled in different environments. In some areas, such as the middle Piura Valley, a crossroads situation generated cultural and economic contacts, which continued during the later periods. The collapse of the Formative cultures was probably accompanied by the rise of hereditary chiefdoms and by the formation of micro-regional policies. A relative cultural continuity is attested in the northern areas, while the southern and eastern areas show evidences of important population movements and of repeated influences coming from the southern (Peruvian) societies. After the seventh century AD, aggressive newcomers from further east entered the eastern slopes region of southern highland Ecuador, probably producing a collapse of exchange. The short Inca colonization generated a revival of cultural interactions while altering the social, political, economic and built environment to varying degrees.

NOTES

1. Chronological references, quoted BC or AD, follow the usual calendar calibrations.
2. Radiocarbon dates, quoted b.p., are reported uncalibrated.

REFERENCES

- Bruhns, Karen O., James H. Burton, and George R. Miller, 1990, Excavations at Pirincay in the Paute Valley of southern Ecuador, 1985–1988. *Antiquity* 64 (243): 221–233.
- Burger Richard L., 1984, Archaeological areas and prehistoric frontiers: the case of Formative Peru and Ecuador. In *Social and Economic Organization in the Pre-Hispanic Andes*, edited by David L. Browman, Richard L. Burger, and Mario A. Rivera, pp. 33–71. BAR International Series, 194, Oxford.
- , 1992, *Chavín and the Origins of Andean Civilization*. Thames and Hudson, London.
- Cárdenas, Mercedes, 1978, *Columna Cronológica Para el Desierto de Sechura, Piura*. Instituto Riva Agüero, Pontificia Universidad Católica del Perú, Lima.
- Church, Warren B., 1996, Prehistoric Cultural Development and Interregional Interaction in the Tropical Montane Forests of Peru. Ph.D. dissertation. Department of Anthropology, Yale University.
- Dillehay, Tom, Jack Rossen, and Patricia Netherly, 1992, Ocupación del precerámico medio en la zona alta del valle de Zaña: innovación o aculturación. In *Estudios de Arqueología Peruana*, edited by Duccio Bonavia, pp. 69–89. Fomciencias, Lima.
- Gomis, Dominique, 1999, La cerámica formativa tardía de la sierra austral del Ecuador. In *Formativo Sudamericano*, edited by Paulina Ledergerber-Crespo, pp. 139–159. Abya-Yala, Quito.
- Guffroy, Jean, José Pablo Baraybar, Carmen Rosa Cardoza, Gabriel Carlier, George Clément, Philippe Donzé, Laure Emperaire, Marc Fournier, Michel Girard, Robert March, Luc Ortlieb, Gerasimo Sosa, and Julia Watzet, 1994, *Cerro Ñañañique: Un établissement Monumental de la Période Formative, en Limite de Désert (Haut-Piura, Pérou)*. ORSTOM, Paris.
- , 2004, *Catamayo Prehispánico. Investigaciones Arqueológicas en el Sur de la Provincia de Loja*. UTPL/BCE/IFEA/IRD, Loja.
- Izumi, Seiichi and Kazuo Terada, 1966, *Andes 3. Excavations at Pechiche and Garbanzal, Tumbes Valley, Peru, 1960*. Kudokawa Publishing Co., Tokyo.
- Kaulicke, Peter, 1981, Keramik der fruhen Initial-periode aus Pandanche. Dpt. Cajamarca. Peru *Beiträge Zur Allgemeinen Archäologie* 3: 363–389.
- , 1991, El periodo intermedio temprano en el Alto-Piura: avances del proyecto arqueológico Alto-Piura. *Bulletin de l'Institut Français d'Etudes Andines* 20 (2): 381–422.
- , 1998, El periodo formativo de Piura. In *Perspectivas Regionales del Periodo Formativo en el Perú*, edited by Peter Kaulicke, pp. 19–36. *Boletín de Arqueología UCP* 2. Pontificia Universidad Católica del Perú, Lima.
- Lanning, Edward P., 1963, *A Ceramic Sequence for the Piura and Chira Coast*. University of California Publications in Archaeology and Ethnology, Vol. 48, No. 2. University of California Press, Berkeley.
- Morales, Daniel, 1992, Chambira: alfareros tempranos de la amazonia peruana. In *Estudios de Arqueología Peruana*, edited by Duccio Bonavia, pp. 149–176. Fomciencias, Lima.
- Onuki, Yoshio, 2001, Cupisnique en la sierra de Cajamarca. *Arqueológicas* 25: 67–81. Lima.
- Richardson III, James B., 1978, Early man on the Peruvian north coast: early maritime exploitation and the Pleistocene and Holocene environment. In *Early Man in America*, edited by Alan Bryan, pp. 274–289. University of Alberta Press, Edmonton.
- , 1987, The Chronology and Affiliations of the Ceramic Periods of the Departments of Piura and Tumbes, Northwest Peru. Paper presented at the 51st annual meeting of the Society for American Archaeology, Toronto.
- Shady, Ruth, 1999, Sociedades formativas de Bagua-Jaén y sus relaciones andinas y amazónicas. In *Formativo Sudamericano*, edited by Paulina Ledergerber-Crespo, pp. 201–211. Abya-Yala, Quito.
- Staller, John E., 2000, The Jelí phase complex at La Emerenciana, a late Valdivia site in southern El Oro province, Ecuador. *Andean Past* 6: 117–174.
- Stothert, Karen E., 1985, The Preceramic Las Vegas culture of Coastal Ecuador. *American Antiquity* 50: 613–637.
- Temme, Mathilde, 1982, Excavaciones en el sitio precerámico de Cubilán. *Miscelanea Antropológica Ecuatoriana* 2: 136–164.
- Uhle, Max, 1922, Influencias mayas en el Alto Ecuador. *Boletín de la Academia Nacional de Historia* 4 (10–11): 205–240.
- Valdez, Francisco, Jean Guffroy, Geoffroy de Saulieu, Julio Hurtado, and Alexandra Yepes, 2005, Une nouvelle tradition culturelle formative sur le versant oriental des Andes. *C.R. Palevol* 4: 369–374.

Chachapoyas: Cultural Development at an Andean Cloud Forest Crossroads

WARREN B. CHURCH
AND ADRIANA VON HAGEN

INTRODUCTION

At the cloud forest juncture of the northeastern Peruvian Andes and the upper Amazon basin, the pre-Columbian societies subsumed under the label “Chachapoya culture” occupied the Colonial-period threshold to mythical El Dorado and the feral lowland rainforests. To scholars and the public, the region evokes images of abandoned jungle cites and the quintessential “lost civilization,” cloaked in impenetrable forest and mystery. Today, the northern Peruvian cloud forest is remote, with large uninhabited expanses representing archaeological terra incognita and reputedly “some of the last forested wilderness of South America” (Young and León 1999: 11). Yet paradoxically, these montane forests harbor archaeological evidence of dense pre-Hispanic populations and spectacular monumental archaeological sites. Mounting evidence shows that, far from being isolated, the Chachapoya thrived at a cultural crossroads that once connected distant Andean and Amazonian societies.

Scholars have repeatedly argued that the challenging eastern Andean tropical forests cannot sustain dense settlement or support independent development of complex societies. History shows that when presented with such settlement anomalies, archaeologists typically resort to migration theories (Adams et al. 1978). Literature about the region is largely descriptive, but interpretations reflect an obsession with population origins; indeed, every cardinal direction has been suggested as a point of origin. From the highlands, migrants were purportedly driven by droughts, or served as state-sponsored, agricultural colonists.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

The lowlands and highlands allegedly contributed migrants responding to population pressure. We believe the time has come to address Chachapoya archaeology as an indigenous, eastern slope development. While still sketchy, the sequence of Chachapoya cultural development has begun to resemble developmental trajectories documented in better-known Andean regions; in presenting a provisional culture history for the region we use common conventions such as the Rowe-Menzel (1967) chronological framework, and emphasize emerging themes.

WHO WERE THE CHACHAPOYA?

“Chachapoya” describes the ancient Andean societies inhabiting the cordillera between the Marañón and Huallaga rivers that were subjugated by the Incas during the mid-fifteenth century, while “Chachapoyas” refers to the pre-Hispanic geographic domain surrounding the modern city of Chachapoyas (see Figure 45.1). Scholars debate the term’s etymology, although “Chacha” evidently referred to a major ethnos occupying the upper Utcubamba Valley during the sixteenth century. As an ethnohistorical culture-area construct, there is little documentary evidence for a body of Chachapoya core traits. Espinoza (1967) cites worship of similar deities and music, dance, costume and language as unifying elements, but the imposition of Inca Quechua has complicated historical reconstruction of aboriginal language(s). Based on available ethnohistorical information, and distributions of archaeological traits, the most reliably identified Chachapoya boundary is the Marañón to the west. Scant documentary evidence places a southern limit around 8° south latitude near the boundary shared by the modern departments of La Libertad and Huánuco. The northern and eastern boundaries remain unknown, and are likely to have fluctuated.

Some ethnohistorians argue that Chachapoya ayllus lacked pan-regional political unity, except when they formed confederacies to confront external threats such as those posed by the Incas (Espinoza 1967; Pease 1982; Zevallos 1995). Among pre-Inca Chachapoya ayllus, sociopolitical organization probably ranged through a continuum of egalitarian and ranked levels of complexity. Espinoza (1967) has suggested village-centered ayllus as maximal sociopolitical units, while archaeologists have assumed chiefdom (Schjellerup 1997), and even state (Morales C. 1994) levels of sociopolitical integration. No settlement survey has documented the kinds of site hierarchies expected of complex chiefdoms or states. Both inter-site and intra-site architectural and mortuary variability do suggest social inequality, and early documentary evidence intimates that demonstrated prowess in warfare and sorcery, as well as heredity, provided routes to leadership status. These institutions, however, may have been amplified under Inca and Spanish domination. Control of exchange alliances and acquisition of wealth may have offered an additional route to positions of high status and leadership.

In reality, the archaeological evidence for local and regional Chachapoya sociopolitical development is paltry, and open to various interpretations. We believe that similarities in pottery styles, architectural details and settlement patterns indicate that by the beginning of the Late Intermediate Period (LIP, AD 1000), a regional identity emerged throughout Chachapoyas based upon the growth and fissioning of ayllus that remained linked by kinship, regional sodalities and trade alliances. This identity coalesced into an ethnic category labeled “Chachapoya” for administrative convenience by the Incas when they incorporated local ayllus into a single province organized by decimal census categories. Some ayllus’ names appear in the earliest Colonial census records, but frequent

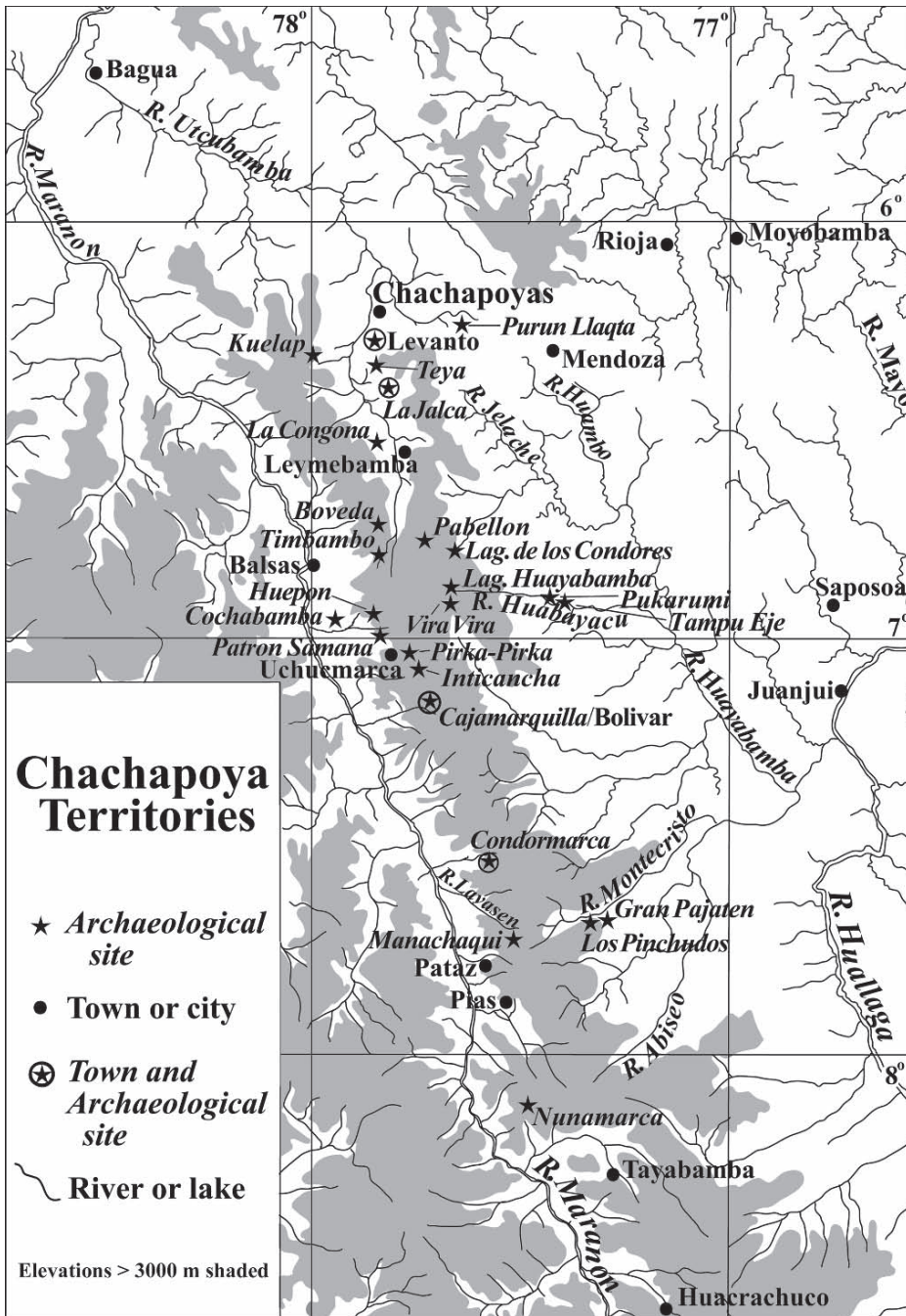


Figure 45.1. Map of northeastern Peruvian Andes indicating Chachapoya archaeological sites. (Warren Church and Adriana von Hagen)

reshuffling of populations by Inca and Spanish administrators makes it difficult to ascertain their pre-Inca status.

Chachapoya archaeology, architecture, and artistic canons have been under study for some time (e.g. Bandelier 1907; Kauffmann 1983; Langlois 1939, 1940a, 1940b; Lerche 1986, 1995; Reichlen and Reichlen 1950), and recent mortuary finds are broadening our perspective on Chachapoya art and iconography (von Hagen 2000, 2002a, 2002b, 2002c; von Hagen and Guillén 1998; Morales G. 2002a, 2002b; Morales G. et al. 2002). Chronological sequences from stratified sites are now available (Church 1994; Ruiz E. 1972; Schjellerup 1997). Bioarchaeological studies of population genetics and mortuary practices are underway (Buikstra and Nystrom 2003; Guillén 2003; Jakobsen et al. 1987; Nystrom in press) and offer insights into population interactions. Many of these publications offer interpretations regarding Chachapoya religion and ideology. We begin with a discussion of regional geography and ancient Chachapoya land-use, and then launch into our interpretation of Chachapoya cultural development based upon the evidence on hand. Unfortunately, we must rely on data from a single southern site, Manachaqui Cave, to sketch the Chachapoya developmental sequence during the millennia preceding AD 1.

ANCIENT CHACHAPOYAS LANDSCAPES

At the northeastern extreme of the central Andean massif, Chachapoyas offered its inhabitants a strategic position to mediate cultural interaction among three great South American archaeological co-traditions: the Central Andes, the northern Andes, and western Amazonia. The role of the Chachapoya as purveyors and conveyors of resources shaped the character of regional cultural development, especially lending Chachapoya art, architecture and iconography the syncretistic, cosmopolitan flavor that seems paradoxical in a location so isolated today. Throughout Chachapoyas, canyons abruptly descend thousands of meters through tightly compacted alpine, montane, premontane and tropical life zones. In the southern area, vertical drops of 4,000m occur within horizontal distances of only 50km. Chachapoya settlements typically crown mountain and ridge tops above intermontane valleys covered in thick cloud forest where they are exposed to moist air masses that rise from the Amazon basin and condense between 2,500 and 3,500 masl. The steep ridges blocking the westerly flow of moist air leave semi-arid "topoclimates" on their leeward slopes and generate great biogeographic complexity. Modern human settlement has further fragmented the montane forests.

The chief Chachapoyas landform is the eastern Andean cordillera separating the Marañón and Huallaga, both major north-flowing tributaries of the Amazon. Reaching altitudes well above 4,000 masl in the south, the crest of the divide is covered by alpine and sub-alpine grasslands in glacially carved, U-shaped valleys separated by rocky peaks. Moist Amazonian air-flow striking the eastern flanks generates perhumid and humid tropical montane forests from 400 to 3,500 masl above the banks of the Huallaga. On the drier western slopes, modern populations farm moist montane valleys between 2,500 and 3,200 masl. In northern Chachapoyas, the Utcubamba and its tributaries split the cordillera in two while flowing north to join the Marañón near the modern city of Bagua. Summits separating the Utcubamba from the Marañón to the west, and the Huayabamba drainage to the east, gradually descend below 3,000 masl just north of Chachapoyas. Arid thorn forests predominate toward the bottom of the Marañón canyon near 1,000 masl.

PRE-CERAMIC CHACHAPOYAS

Lacking archaeological data, scholars have tended to overlook the forested eastern slopes of the Central Andes as potential habitats for early foraging populations. Excavations at Manachaqui Cave (3,650masl), however, recovered evidence of human occupation as early as cultural remains from South American regions that have received far more intensive study (Church 1999, 2004). Two AMS dates calibrated to approximately 12,200 and 11,900BP (dates calibrated using McCormac et al. 2004; OxCal v.3.10, Bronk Ramsey 2005 unless otherwise noted) accompany scrapers, graters, burins, and stemmed projectile points (see Figure 45.2a-g) resembling north coastal Peruvian Paiján (Chauchat 1988) and highland Ecuadorian El Inga styles (Bell 2000). The Manachaqui points seem to represent a southern, eastern-slope extension of an ostensibly “northern Andean” lithic industry, but great stylistic variability suggests that more than one transient population used the

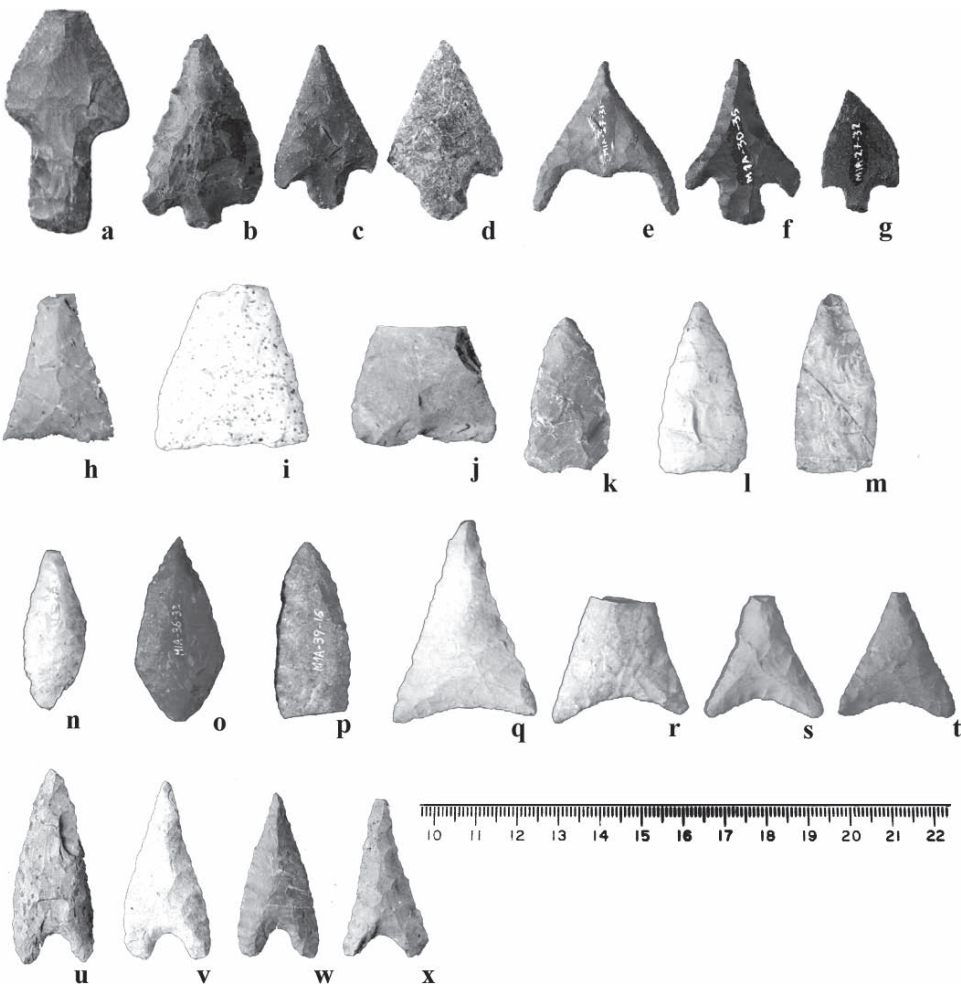


Figure 45.2. Pre-ceramic period projectile points from Manachaqui Cave. (Warren Church)

cave. The finds support postulations that the eastern slope ecotone provided game species such as deer, taruca and other attractive resources (Dillehay 2000), while it may also have served as a migratory corridor for the southward spread of South America's early settlers (Hester 1966; Lothrop 1961; Raymond 1988; Sauer 1944). Manachaqui's late Pre-ceramic Period levels yield abundant triangular points with basal notches (Figure 45.2h-k), associated with hearths and radiocarbon dates averaging 2700 BC (Church 1996). Because the nearest distribution of similar triangular points lies 1,000 km distant at sites such as Asana (Aldenderfer 2000) and Toquepala (Ravines 1972) in southernmost highland Peru, the isolated northern occurrence of this point style at Manachaqui warrants further study and explanation.

Around 2000 BC, Manachaqui's function shifted from a hunting camp to a semi-permanent habitation. A terminal Pre-ceramic Period component termed the Lavasén phase has been identified by occupation floors and rock-filled hearths, but few diagnostic artifacts (Church 1996). Charred, macrobotanical remains identified by Pearsall (1996) complement contemporaneous palynological indications of landscape disturbance and cultivation of *Chenopodium* or *Amaranthus* in the Manachaqui Valley (Hansen and Rodbell 1995), and fit into the widespread pattern of Late Preceramic Period cultivation of high-altitude grains in the Central Andes (e.g., Pearsall 1989, 1992; Chepstow-Lusty et al. 1998). These centuries coincide with the coastal Cotton Pre-ceramic Period. At both Manachaqui and at Pandanche in Cajamarca (Kaulicke 1975) it is tempting to speculate that "impoverished" core-flake lithic assemblages reflect the local adoption of woven cotton fiber for clothing, and the abandonment of lithic technologies adapted to processing animal hides. Manachaqui's obsidian flakes have been traced to the Alca source approximately 1,000 km distant in the southern highlands of Arequipa (Burger et al. 1996).

THE EARLY CHACHAPOYA CERAMIC TRADITION AND NORTHERN ALLIANCES

The Initial Period Manachaqui phase (ca. 1400 BC) witnessed the adoption of ceramic technology and the appearance of a "Chachapoya ceramic tradition" that Schjellerup (1997) dates to the mid-Early Intermediate Period (EIP) based upon her excavations at the central Chachapoyas site of Huepón. In fact, Manachaqui's earlier sequence suggests an earlier origin for a Chachapoya ceramic tradition marked by technological, formal and decorative attributes that persisted for two thousand years. The tradition features globular jars with round bases, short constricted necks, and everted, often folded rims, while decorative techniques emphasize the embellishment of vessel midsections, shoulders and rims with appliqué and incised appliqué clay strips in a variety of geometric, especially serpentine, patterns (Figure 45.3a-vv). Red slip, especially around the rim, becomes increasingly popular through time.

Manachaqui Phase jars are small and portable with carinated and semi-carinated bodies (Figure 45.3a-i). After beveling, rims were frequently notched or lips deeply incised by gouging with a sharp tool. Incised appliqué ribs festoon vessel rims, midsections and shoulders, along with flanges and rare adornos. The Manachaqui style is singular, but it shares design features with highland Cajamarca's Early Huacaloma (Terada and Onuki 1982) and Pandanche A (Kaulicke 1975), as well as with Bagua's Morerilla styles (Shady 1987), as part of a larger ceramic interaction sphere arching around the northernmost Peruvian Andes. Intrusive in the assemblage are micaceous wares, recovered within a single layer tightly dated to 900 BC (Figure 45.3j, k), and featuring attributes

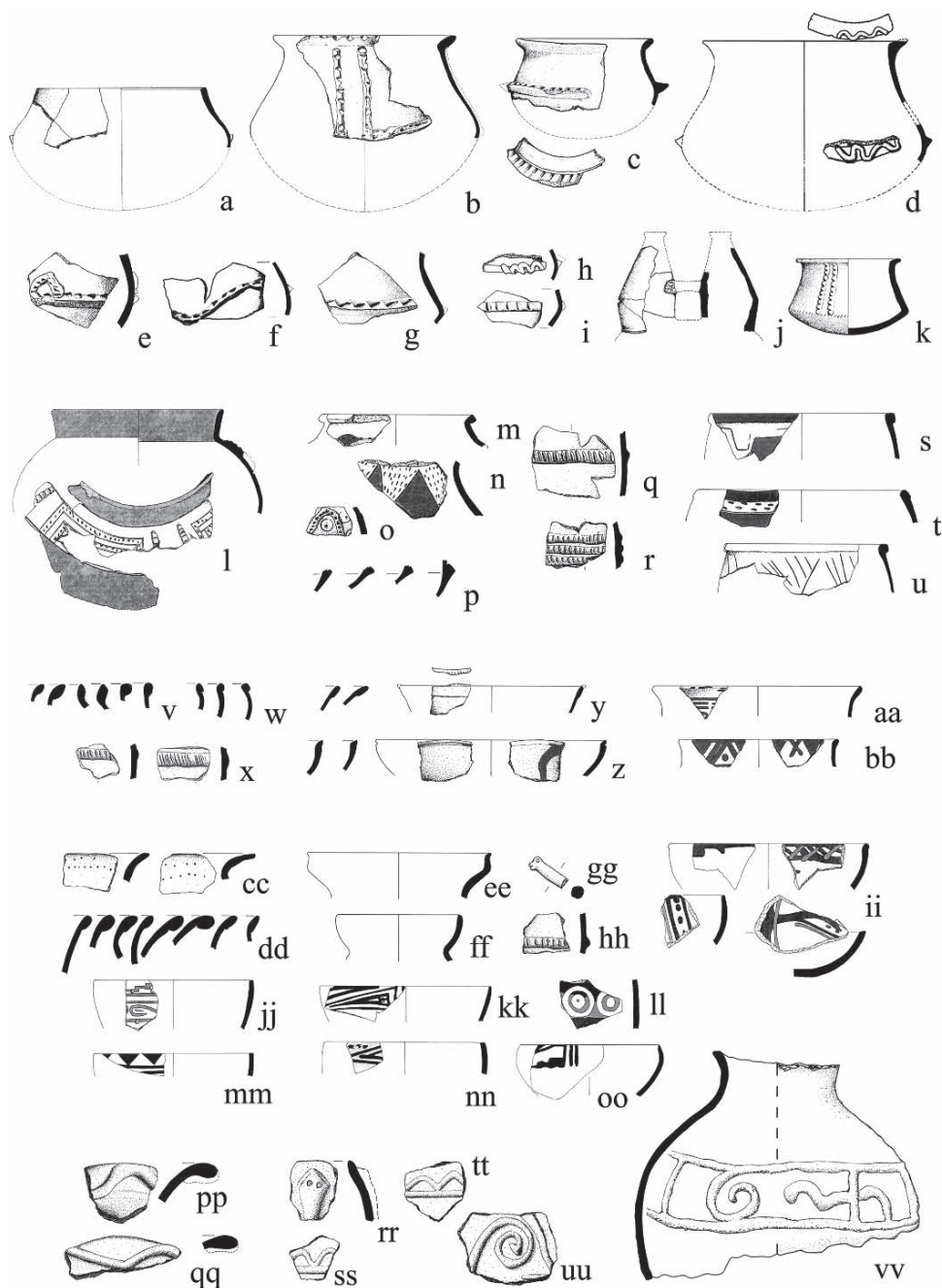


Figure 45.3. Ceramic samples excavated at Manachaqui Cave (a-oo); Gran Pajatén (pp-uu), and isolated find from site Man-3 (vv). (Warren Church)

that distinguish Amazonian styles such as Peru's Late Tutishcainyo (Lathrap 1970) and Ecuador's Yasuní (Evans and Meggers 1968). This stylistic current from the northeastern lowlands appears abruptly at the end of the Manachaqui Phase, and coincides with the spread of Chorrera tradition stylistic attributes throughout the northern Andes (Idrovo

2000), and a “flash horizon” dispersal of new bottle shapes across the upper Amazon basin (DeBoer 2003).

During the subsequent Suitococha phase, Manachaqui’s function as a wayside shelter offers an unusual opportunity to evaluate the oft-repeated statement that the Marañón Valley served as a conduit for the penetration into the Central Andes of Formative Period Ecuadorian aesthetic and cosmological notions (Lanning 1967; Lathrap 1970; Lumbreras 1993). The Suitococha ceramic assemblage introduces new jar and bowl shapes decorated with iridescent paint, zoned and polished red paint, punctation, stamping, and engraving (Figure 45.3l-u). These attributes ally it with Bagua (Shady 1987), Chorrera (Estrada 1958) and Upano (Porrás 1987; see also Chapter 15 in this volume) styles to the north. Maize, probably grown at lower altitudes, appears at Manachaqui for the first time. The abrupt appearance of Chorrera tradition elements suggests that Chachapoyas had assumed a new role, channeling Early Horizon (EH) peer-polity interaction across the north-central Andes (Burger 1984, 1992; Shady and Rosas 1979). Nevertheless, the centuries between 500 and 200 BC corresponding to the spread of the Chavín cult appear to be poorly represented at Manachaqui.

EARLY CHACHAPOYAS SETTLEMENT PATTERNS AND SHIFTING INTERACTION SPHERES

The beginning of the EIP around 300 BC marks the first widespread occurrence of archaeological sites throughout northern and southern Chachapoyas. Sherd scatters (but no preserved surface architecture) on low ridge tops between 2,500 and 3,100m above the Marañón probably indicate incipient population nucleation (Church and Valle n.d.; Schjellerup 1997). At Huepón (2,960masl), Schjellerup (1997) excavated local ceramics radiocarbon dated to AD 10 (calibrated using Stuiver and Pearson 1993), and associated with EIP Initial and Early Cajamarca styles. The EIP also marks the first evidence of human occupation deep in the eastern cloud forest at Gran Pajatén, where excavations in construction fill recovered ceramics, maize kernels, and a stone hoe blade. Ceramic assemblages from Gran Pajatén and Manachaqui’s Colpar Phase layers feature short-necked jars, convex bowls with beveled rims (Figure 45.3v-bb), and radiocarbon dates ranging from 300 BC to AD 200. At Manachaqui, Ecuadorian ceramic attributes, and bones of a “sleeper,” a warm-water estuary fish, attest to continued long-distance connections with northern lowland societies.

During the mid-EIP, a dramatic change in Chachapoya tradition pottery technologies coincides with the incorporation of local populations into expanding EIP Central Andean interaction spheres (Church 1996, 2004). The shift to a coarse brown ware emphasizing larger, globular jars with thick walls and longer, everted rims (Figure 45.3cc-hh) was thought by Lathrap (1970) and Isbell (1974) to represent the arrival of migrating Quechua-speakers who cultivated maize on artificial terraces and favored settlement locations on high, defensible ridge tops above 3,500masl. At Manachaqui, however, the simultaneous appearance of these new pottery attributes with camelid bones suggests the introduction of llama caravan transport technologies from the southern Andes. Jar characteristics were modified to facilitate transport in cloth or net “saddlebags” rather than by hand.

Additional archaeological data demonstrate that Chachapoyas became firmly linked into EIP Central Andean interaction spheres, participating in vast interregional exchange networks. At Kuelap (Ruíz E. 1972) and Huepón (Schjellerup 1997), fine kaolin-ware

bowls imported from Cajamarca indicate sustained mid-EIP trade alliances across the Marañón. Farther south, however, similar fine wares (Figure 45.3ii-oo) attest to exchange across the Marañón with societies in the Recuay and Conchucos regions (Church 1994, 1996). The co-occurrence of positive-painted Recuay fine wares at Manachaqui, Gran Pajatén and in coastal valleys such as Nepeña (Proulx 1982), provides evidence for chains of east-west mediated exchange. The striking resemblance of Cajamarca modeled rims (Onuki and Terada 1982) to rims of undated assemblages collected in the Huallaga lowlands (Ravines 1978) suggest that Chachapoya societies were now mediating Andean-Amazonian exchange.

Although supporting data is scant, we hypothesize that the stone carving traditions for which Chachapoyas is so renowned originated in the Recuay and Conchucos regions and spread northward through the Chachapoya site of Nuñamarca to proliferate during the Middle Horizon (MH) and subsequent centuries. Resemblances between Nuñamarca's lithic sculpture illustrated by Tello (2004) and Curtin (1951), and sculpture throughout the Recuay and Conchucos regions suggest reliable mid-EIP cross-dates for sculpturally embellished Chachapoya monumental constructions. Indeed, these architectural, technological and iconographic similarities prompted Tello (1942) and his students (Mejía 1956; Rojas 1970) to include Chachapoyas within their hypothetical Marañón or Huaylas culture area. Images of splayed human figures, felines, and feline-human hybrid creatures with fanged teeth, shown in profile, are broadly distributed throughout north highland Peru. The similarity between the splayed stance of a figure gracing a Recuay stone relief (Grieder 1978: fig. 148) and Chachapoya human images portrayed at Gran Pajatén may offer compelling evidence for contemporaneity and culture contact. Nevertheless, their contexts indicate that a thousand years separate their dates of manufacture. Great caution must be exercised in using iconographic attributes for dating purposes, since such stylistic elements evidently persisted for many centuries in Chachapoyas (Church 1994; Kauffmann 1983).

CHACHAPOYAS DURING THE MIDDLE HORIZON

Despite the dearth of radiocarbon dates representing the Middle Horizon (MH) between AD 700–1000, many scholars have assumed that construction of Chachapoyas monumental settlements and tombs began during the mid-MH, around AD 800. This assumption rests upon Ruiz's (1972) association of masonry constructions at Kuelap with Pumahuanchina phase layers containing Chachapoya tradition ceramics and both imported and emulated Cajamarca III (Reichlen and Reichlen 1949) or Middle Cajamarca (Terada and Matsumoto 1985) floral cursive bowls. Based upon later excavations at Kuelap, Narváez (1988) concurs with Ruiz's assessment. Huepón's stratified deposits evidently include a MH component (Schjellerup 1997), though details have not yet been reported. Further south near Pataz, only a few Wari-influenced tri-colored sherds from excavations at Chirimachay Cave represent the MH (Church 1994). In summary, archaeological evidence suggests continuous occupation of Chachapoyas through the MH, but more precise chronological evidence for the beginning of Chachapoyas monument building is needed.

Although Wari imperial incursions and interactions dating to MH epochs 1B-3 (approximately AD 650–850) had increasingly attenuated impact on societies north of Huamachuco, several lines of evidence indicate that MH interaction spheres stretched into Chachapoyas and the northeastern fringes of the Central Andes. A few Wari-style sherds collected during "cleaning" at Kuelap date to MH 2B (Ruiz E. 1972), while a single sherd from Cerro

Campanario near Uchucmarca dates to late MH 1B (Keith Muscutt, personal communication, 2002) (see Figure 45.4c). Imported Cajamarca III ceramics at Pirka-Pirka (Vega 1978) near Uchucmarca, and a Cajamarca floral-cursive bowl from a tomb at nearby Laguna Huayabamba (Figure 45.4d) radiocarbon dated to AD 1050 (Briceño and Muscutt 2004) attest to

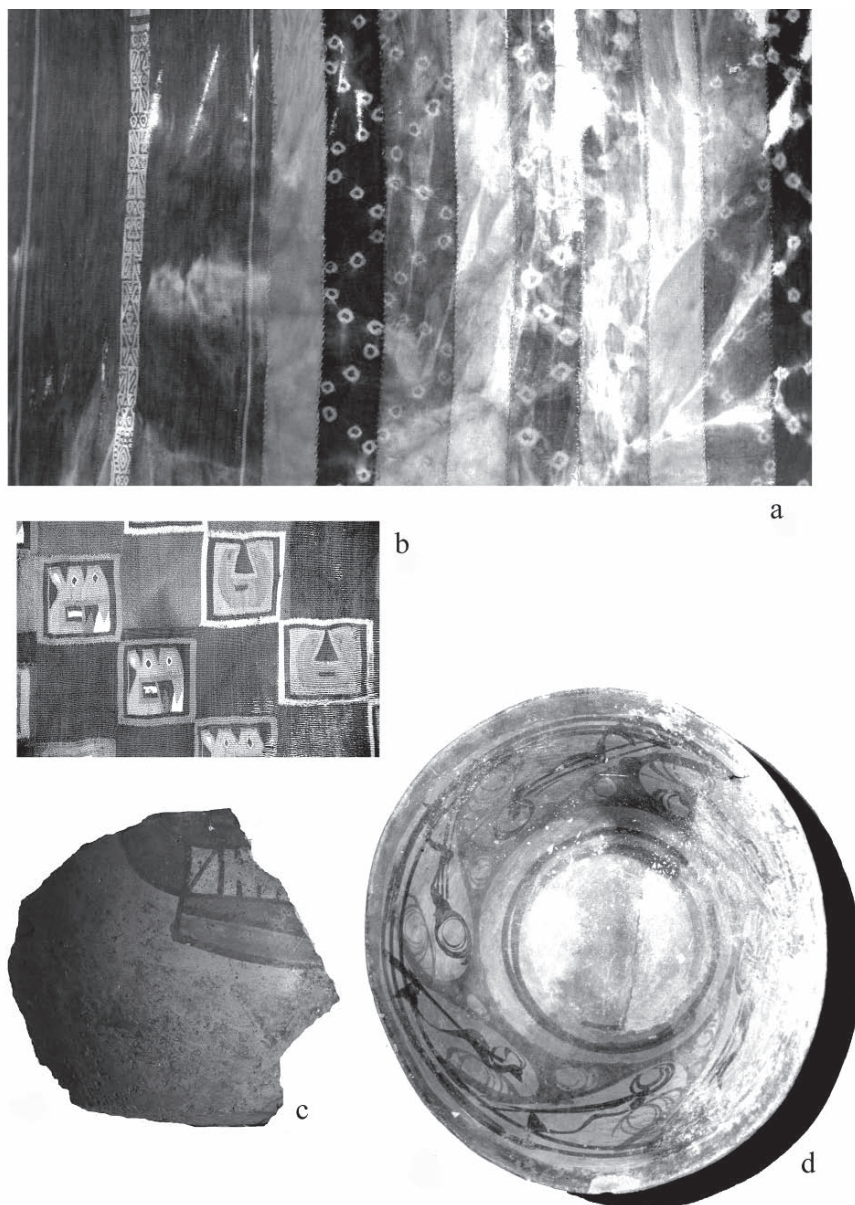


Figure 45.4. Detail of tie-dyed tunic from Laguna de los Cóndores (CMA 0600) (Adriana von Hagen); b. Detail of tapestry tunic portraying human heads and profile feline heads, Laguna de los Cóndores (INCL-0111) (Adriana von Hagen); c. Middle Horizon IB sherd found at Cerro Campanario (Keith Muscutt); d. Cajamarca floral-cursive bowl from Laguna Huayabamba (Keith Muscutt)

MH exchange across the Marañón. Like their Inca successors, Wari likely sought access to Chachapoyas' tropical resources, perhaps through Cajamarca intermediaries.

Aside from trade pottery, evidence for Wari impact in Chachapoyas is most clearly seen in textiles from well-preserved Chachapoya-Inca chullpas and mortuary contexts now housed in the Museo Leymebamba (see Figure 45.4a-b). While several technical features suggest an Inca affiliation, iconography and technical attributes such as tunic assembly methods and tapestry weaving techniques point to Wari inspiration (von Hagen n.d.). Cajamarca intermediaries may have introduced Wari textiles into the region, where Chachapoya weavers imitated the new techniques and iconography; many of these traits apparently lingered in Chachapoya weavers' repertoire well into the LIP. Tie-dyed tunics from Laguna de los Cóndores and nearby Quintecocha offer particularly compelling examples of Wari influence. The tunics are simplified interpretations of stunning Wari "patchwork" textiles (see Stone-Miller 1992: plates 21a, 21b) documented from coastal tombs. South of Laguna de los Cóndores, excavations at the aforementioned Laguna Huayabamba tomb yielded a fragment of plain weave, tie-dyed cotton (Muscutt, pers. comm. 2002). Associated radiocarbon dates suggest that tie-dye was used in Chachapoyas by 1050 AD and the end of the MH.

CULTURAL FLUORESCENCE DURING THE LATE INTERMEDIATE PERIOD

During the LIP, the Chachapoya embarked on a period of population growth, settlement nucleation and artistic fluorescence, a trend that scholars believe began by the end of the MH. The timing of these profound changes remains poorly documented, but participation in MH interaction spheres no doubt had a significant catalyzing impact. The onset of the LIP marks the genesis of "classic" Chachapoya culture, with its hallmark hamlets, villages and fortified urban complexes of circular stone constructions, and cliff tombs. Throughout the region, hundreds of settlements cluster above 3,000 masl along the Marañón-Huallaga divide or between 2,000–2,900 masl on the forested slopes of the eastern cordillera. Nucleated settlements with four hundred or more structures are rare, but include Kuelap, high above the Utcubamba, (Narváez 1996a, 1996b), Caserones or Timbambo in the Atuen watershed (Schjellerup 1997), Purun Llaqta de Cheto east of the modern city of Chachapoyas (Ruíz B. 2004), and La Jalca east of the Utcubamba (Lerche 1986). While the promontory location of sites may be a response to internecine hostilities, as suggested by the chroniclers, few settlements, aside from Kuelap, are fortified. Mountain terrain provided natural defenses for some settlements. Walled settlements include Vira Vira (Muscutt 1998), Teya (Langlois 1939; Lerche 1995) and Pabellón (Lerche 1995). The Chachapoya may have placed their villages on mountaintops to mitigate high rainfall and landslides, or to avoid occupying potential farmland (Schjellerup 1997). Unfortunately, very few Chachapoyas sites have been adequately dated, and in the absence of excavated samples and examination of architectural details, it is often difficult to determine whether settlements were built and occupied during the LIP, Late Horizon (LH) or both. It is seldom possible to date sites merely by the presence or absence of Chachapoya architectural canons and iconography since many of these have EIP roots, persist through the LH, and even appear accentuated at some Inca period sites.

Subsistence practices focused on high altitude tubers and grains, hunting, and tending domesticated guinea pigs and camelid herds for needed meat protein. Many settlements are

surrounded by the extensive remains of field systems, ranging from broad, earthen terraces to ridged fields and stone-faced terraces in protected gullies. At 3,800 masl, Timbambo (or Caserones) in the Atuen drainage is surrounded by 500 ha of field systems and nearby Bóveda (3,400–3,600 masl) includes 100 ha of field systems (Schjellerup 1997). Around La Jalca in the Utcubamba Valley, studies by Lerche (1986) revealed similarly constructed, extensive terracing systems. Further down the eastern slopes, especially in the Huayabamba and Abiseo drainages, large terracing systems covering slopes in the Montecristo Valley surrounding Gran Pajatén suggest that maize was probably cultivated intensively.

Although circular houses are not unique in the ancient Andes, singular features distinguish Chachapoya constructions. They frequently sit atop larger, circular platform bases, accessed by ramps or stairways. Decorative, stone mosaic friezes (zigzags, rhomboids, step-frets or figurative motifs such as those at Gran Pajatén) embellish the platforms or structures' upper walls; only rarely are these found gracing interior walls (see Figures 45.5, 45.6). Cornices, surrounding or set in a half-moon around the houses, served as decorative features or walkways, protecting the foundations from rainfall. Steeply pitched, conical thatch roofs crowned the constructions. The settlements appear to follow the terrain in a seemingly random pattern, although Kuelap includes houses clustered along corridors or facing common patios, suggesting planning, and reflecting social relations (Narváez 1988).

Perched on a ridge at 3,000 masl, high above the Utcubamba, Kuelap is one of the most impressive northern Chachapoya sites, not only for the natural beauty of its setting but for the sheer audacity of its surrounding wall. Today, orchids and bromeliads festoon large trees, hinting at the lush forests that once blanketed much of the region. The citadel occupies around 6 ha and runs north-south along a limestone ridge almost entirely encased by a giant retaining wall. The site complex, however—including outlying settlements, tombs and agricultural terraces—covers approximately 450 ha. The height of the perimeter

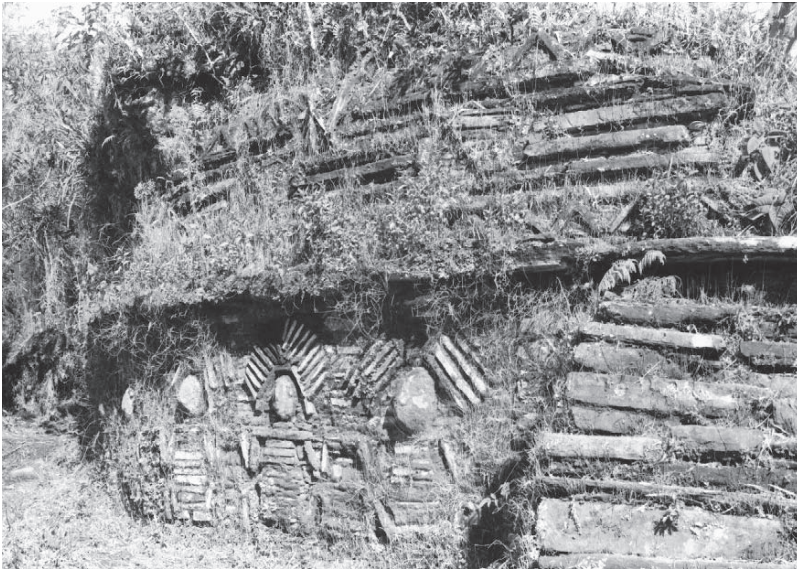


Figure 45.5. A slate frieze portraying human figures with carved sandstone tenoned heads decorates the lower exterior wall of Building No. 1 at Gran Pajatén. (Gregory O. Jones)



Figure 45.6. Typical Chachapoya circular dwellings, partially reconstructed at Kuelap. (Warren Church)



Figure 45.7. Kuelap's surrounding wall reaches up to 20 m in height. (Warren Church)

wall ranges between 10 and 20 m, and is entirely built of finely cut limestone masonry covering an interior core of rubble fill and mud mortar (see Figure 45.7). Ongoing ceramic analysis (Narváez and Morales G. 1999) suggests steady occupation from the EIP through early Spanish colonial times, but the period of peak construction activities remains to be determined.

Three entryways punctuate the wall, two on the eastern side and one on the western, cliff side. The main entry is trapezoidal and was once partly covered by a corbelled vault. The entryway is actually a 60 m-long, walled corridor that narrows into a passageway allowing only one person at a time to enter. Excavations and mapping within the settlement by Narváez (1988) revealed 420 mostly circular structures distributed in lower and upper sectors, likely reflecting social divisions. Such bipartite divisions appear to be common at LIP Chachapoya settlements such as Vira Vira, Patrón Samana and La Congona (Ruiz 1985). At Kuelap, the walled-off upper sector contains several rectangular structures with unknown functions. The imposing surrounding wall, restricted entryways, possible parapets and 2,500 sling stones stashed on the Torreón, a tower at the settlement's northern side, imply that Kuelap's inhabitants were preoccupied with security. Large clumps of burnt roofing thatch indicate that residents either burned the structures at the time of abandonment or that Kuelap came to a violent end.

THE INCAS AND THE CHACHAPOYA

The Inca conquest of Chachapoyas began in the fifteenth century during the reign of Topa Inca. Inca presence in Chachapoyas was brief, yet intense, not only transforming religion, language and settlement patterns, but also restructuring social and political institutions. The Incas reorganized local sociopolitical hierarchies, elevated some local leaders to curaca status and appointed a yana, an outsider, as apical administrator (Espinoza 1967; Pease 1982). They curried the curacas' favor by lavishing them with gifts of women and fine cloth and other trappings of Inca-sanctioned authority. Yet many Inca policies kindled resentment and disputes among competing curacas (Espinoza 1967).

It is no surprise, then, that Inca rule was fraught with rebellions. Ironically, the same institutions that united autonomous ayllus into a centralized and governable province may have ultimately galvanized Chachapoya ethnic identity (Church 1996; Schjellerup 1997, 1999), spawning pan-regional alliances born of resistance. In response to the frequent uprisings, the Incas banished many people as mitmaq colonists (as much as 50% of the population according to Espinoza [1967] and Lerche [1995]) to distant parts of the empire, including Lake Titicaca, the Lucumayu Valley northwest of Cuzco, and in Cuzco itself where Chachapoya served as Huascar's palace guards (Bandelier 1907; Espinoza 1967; Rostworowski 1993). In turn, the Incas resettled Chachapoyas with bureaucrats, potters and loyal subjects whose presence fractured any allied resistance. The pottery-producing community of Huancas, just north of modern Chachapoyas, was inhabited by the descendants of Wanka mitmaq, relocated from the Mantaro Valley during the reign of Huayna Capac. Chachapoya and Cañari mitmaq installed in the Mantaro Valley appear to represent "matched exchanges" of colonists (D'Altroy 1992:197). Mitmaq from the north coast controlled the strategic Marañón crossing at Balsas (Zevallos 1995), while 200 Chupaychu from Huánuco manned garrisons. Despite the turmoil, researchers have not identified Inca forts in Chachapoyas such as those at the northern and southeastern extremes of the empire (Hyslop 1990; D'Altroy 1992).

Ethnohistorical accounts differ regarding the number of Chachapoya hunos (units of 10,000 taxpayers) created by the Incas. We suspect that the Incas established three hunos (Lerche 1986; Schjellerup 1997), but that only two remained by the time the Spaniards arrived (Espinoza 1967). War casualties, mitmaq policies and Inca failure to control less organized or more elusive societies to the north and east must have resulted in substantial population

attrition, provoking repeated political and demographic reorganization. On the eve of the Spanish invasion, the population may have numbered 100,000 individuals, assuming a ratio of one taxpayer for each family of five within two hunus. Site density alone suggests that pre-Inca Chachapoyas' population was at least three-fold greater than the documentary evidence indicates.

According to Espinoza (1967), the Incas administered a southern huno from Cunturmarca, where archaeologists documented a large Inca complex above the modern town of Condormarca. The seat of a northern huno is more difficult to determine, but may have been Levanto, just south of modern Chachapoyas, at the junction of the north-south road and the road east to Moyobamba. Early documents say Topa Inca had a sun temple and a "palace" built there (Espinoza 1967). Alternatively, centrally located Cochabamba may have served as the northern huno seat, as well as the principal Inca administrative center for all of Chachapoyas. Located above Balsas where the road from Cajamarca joins the north-south road, Cochabamba is one the few Inca sites in the region to boast classic, imperial style architecture with double jambed doorways, kancha compounds and fountains (Schjellerup 1997).

Why did the Incas invest such effort and time conquering and re-conquering the rebellious Chachapoya? The overarching goal of Inca expansion was to harness labor, and siphon sufficient wealth to meet the needs of the Inca state and the nobility's opulent supporting infrastructure. Although Chachapoyas' human resources and commodities such as coca and gold must have been desirable, the Incas chiefly aimed to expropriate frontier highland-lowland exchange systems wholesale for access to vital tropical forest resources (Salomon 1986). These networks provided medicinal plants and herbs, honey and beeswax, cacao and wild vanilla, cotton, vegetal dyes, animal pelts, the hardwood of the chonta palm, and the feathers of tropical birds used to decorate headdresses and textiles (von Hagen 2004). Beyond natural resources, ethnohistorical and ethnographic studies portray the eastern lowlands as a pharmacopoeia and home to powerful shamans. Amazonia served as the primordial source of esoteric knowledge, which was also traded into the Andes. If esoteric knowledge was valued as political capital, then controlling access to Amazonia must have been paramount.

Deep in the forest east of Cochabamba the Incas constructed several substantial complexes, including Pukarumi, a walled site at a bottleneck in the Huabayacu river valley (Schjellerup 1997). A few kilometers downriver along a paved road lies Tampu Eje, apparently under construction on the eve of the Spanish invasion. Farther east, researchers recorded the remains of Chachapoya and Inca constructions, agricultural terraces, and the foundations of a sixteenth or seventeenth century chapel (Muscutt 1998; Schjellerup 1997). Inca and Chachapoya constructions have also been identified at similar elevations north of the Huabayacu in the Huambo and Jelache valleys (Schjellerup et al. 2003) and elsewhere in the Huabayacu drainage (Cornejo et al. 2004). These and other installations on the forested slopes of the upper Huayabamba watershed were likely to have functioned as staging areas for feasting and exchange among the Incas, Chachapoya and forest groups such as the Hibito, who occupied territories between the Chachapoya and Huallaga valley lowlanders. Inca tambos, possible garrisons and sites of unknown function (see Lennon et al. 1989; Schjellerup 1997; Coello 2000) dot the Chachapoya landscape, but conspicuous by their scarcity are Inca storage facilities, ubiquitous in other Inca provinces. The extreme humidity of the region, the highly perishable nature of the products, and perhaps distrust of unruly local populations may explain their paucity. Much of the region's output could have been promptly dispatched to Inca provincial centers across the Marañón in Cajamarca, Huamachuco or perhaps south to Huánuco.

The LIP witnessed a proliferation of Chachapoya settlements poised near the forest's edge, many of which controlled entryways into the tropical lowlands. The Incas "colonized" many such settlements by adding their hallmark constructions. Near traditional routes to Moyobamba and the Huayabamba lowlands east of Levanto, fieldwork at the 400-ha settlement of Purun Llaqta de Cheto revealed some 600 constructions, many of them Inca (Jorge Ruíz B., personal communication, 2005). Similarly, Inca constructions were probably late additions at settlements such as Inticancha above Uchucmarca. The eastern slopes between Purun Llaqta and ancient Cajamarquilla (modern Bolívar) are criss-crossed by pre-Hispanic roads (Church 1992; Lerche 1995; Schjellerup 1997), traces of which have even been observed along the lower Huayabamba River (Savoy 1970). The especially dense clustering of Chachapoya settlements between Leymebamba and Bolívar, and the "trailhead" locations of La Jalca, Cunturmarca and other sites attest to the tendency to maximize access to the eastern lowlands.

One trailhead site, Llaqtacocha (2,800 masl) at Laguna de los Cóndores, lies in the heart of territory once occupied by the Chilchos, a Chachapoya subgroup that inhabited the forested slopes east of Leymebamba and northeast of Bolívar, between the Huabayacu and Chilchos rivers (Espinoza 1967; Lerche 1995). The Inca presence at Llaqtacocha is marked by two rectangular constructions at the 33-ha site, which includes the remains of some 130, mostly circular structures (Guillén 2000; von Hagen 2000, 2002a, 2002b, 2002c). Excavations unearthed late Chachapoya and provincial Inca ceramics, indicating that the settlement and the burial site across the lake are contemporary. More recent survey at the neighboring lakes of Quintecocha and La Mona (Panaifo et al. 2005) has documented similar lakeside settlements and tombs in the surrounding cliffs. The Incas appropriated many of the lakes' burial sites, physically and spiritually usurping the sacred tombs of the communities' ancestors overlooking venerated lakes.

The emblematic Chachapoya sites of Gran Pajatén and Los Pinchudos, built in the shadow of Inca hegemony, are considered the pinnacle of Chachapoya architectural achievement. Gran Pajatén is a small ridge-top settlement of approximately 25 buildings (Rojas 1967; Bonavia 1967; Church 1994). Four of the most prominent buildings feature geometric and zoomorphic mosaic-like slate friezes, and others depict frontal views of splayed, anthropomorphic figures with sandstone tenoned heads and elaborate headdresses. Quartz crystals and decorated pottery (Figure 45.3pp-uu) excavated in Building No. 1 suggest that they may have served as residences of privileged individuals who engaged in private rituals. Even larger, equally ornate settlements in the Montecristo Valley await further study. At Los Pinchudos wooden statues are cunningly arrayed under the eaves of the main burial chamber which bears a geometric frieze highlighted in shades of red and yellow ochre and white (Kauffmann 1980; Morales et al. 2002) (see Figure 45.8). Finds of *Spondylus* shell pendants and Chimú-Inca pottery attest to exchange linkages established with the coast under Inca aegis (see Figure 45.9). At both Gran Pajatén and Los Pinchudos, local leaders seem to have used Inca ceramics for private status displays while simultaneously constructing monuments declaring Chachapoya identity to a wider audience.

The mortuary complex at Laguna de los Cóndores across from Llaqtacocha is tucked into a cliff side ledge and consists of six intact chullpas and the foundations of a seventh (Guillén 1999; von Hagen 2002a, 2002b, 2002c; von Hagen and Guillén 1998). Although looters churned through the tombs, slashing mummy bundles with machetes and destroying valuable contextual information, the wide array of burial offerings that accompanied the more than 200 mummy bundles and other human remains display a cosmopolitan mix of local and exotic influences. Khipus, the only ones ever recovered in Chachapoyas,



Figure 45.8. Cliff tombs at Los Pinchudos. Tomb in foreground decorated with step-fret frieze painted in shades of red and yellow ochre with white, and including anthropomorphic wooden statues suspended under eaves. (Gregory O. Jones)



Figure 45.9. Artifacts from Los Pinchudos: a-c. Provincial Inca-style ceramics; d. Chimú stirrup-spout vessel; e. Spondylus shell pendants. (Warren Church)

feature among the extraordinarily valuable finds (Urton 2001; see Chapter 41 in this volume). The well-preserved burial offerings are playing a vital part in finding answers to the genesis of the Chachapoya art style, revealing new imagery on perishable artifacts such as textiles and gourds. Burial goods included unmistakable tropical lowland imports such as a desiccated feline, apparently a margay (which lives at elevations below 900 masl, well below the lake) and headdresses festooned with feathers of lowland species such as parrots and macaws (von Hagen 2004) (see Figure 45.10).

Schjellerup (1997) and other researchers have viewed the widespread proliferation of shared architectural techniques and symbolism during the LH as an overt expression of Chachapoya ethnic identity. During times of conflict and rebellion, artistic archaisms and the prominent commemoration of ancestors can be interpreted as a form of resistance indicative of ethnogenesis. But does this resurgence date to Inca times or to the tumultuous years between Spanish conquest and the implementation of viceroy Toledo's *reducción*



Figure 45.10. Artifacts and iconography recovered from Laguna de Los Cóndores: a. Rollout of a pyroengraved gourd (CMA 1160) (Drawing by Cecilia Núñez); b. Tunic arrayed with profile felines (CMA 0394) (Adriana von Hagen); c. Detail of woven figure from a tunic (CMA 2070) (Drawing by Cecilia Núñez); d. pyro-engraved, profile feline on hollow bamboo container (CMA 1580) (Drawing by Cecilia Núñez); e. Desiccated feline, possibly a margay (CMA 1756). (Adriana von Hagen)

policies in the 1570s? A small wooden crucifix, glazed pottery and glass trade beads indicate that the chullpas at Laguna de los Cóndores continued to be used into early Spanish colonial times. Although Gran Pajatén's radiocarbon dates fall firmly within the LH, numerous dates from Laguna de los Cóndores, Los Pinchudos and the settlement of La Playa near Gran Pajatén suggest a powerful resurgence of Chachapoya cultural identity during the early Colonial era, reminiscent of what happened in the Ica Valley on Peru's south coast where a renaissance of local ceramic styles occurred immediately following the fall of the Inca Empire (Menzel 1976). Similarly, as Inca power waned in Chachapoyas, weavers, potters and architects may have defiantly revived artistic traditions infused with Chachapoya imagery. Conversely, it is entirely possible that the late florescence of Chachapoya artistic and architectural expression reflects both resistance during Inca rule and revival following Inca collapse. Our analysis of calibrated AMS radiocarbon dates from several late Chachapoya settlements does not allow us to reject either possibility entirely.

CONCLUSION

Many archaeologists synthesizing Andean culture history and cultural evolution have ignored or dismissed Chachapoyas as an inconsequential periphery, peopled late in prehistory by intrusive populations. In this chapter we describe and interpret a growing archaeological record of independent cultural development with roots as deep as those of cultures documented elsewhere in the Andes. The record indicates that Chachapoyas played an important role in the peopling of South America by mobile foragers at the end of the Pleistocene. Future investigations may reveal that Chachapoyas witnessed early experimentation with lowland and mid-elevation cultigens that later became highland staples. By the end of the Pre-ceramic Period, local populations intensified cultivation of high-altitude grains much as they did elsewhere in the Andes. Studies of stylistic changes imply that the Marañón-Huallaga divide channeled long-distance interaction during pivotal moments in the evolution of Central Andean civilization. By the mid first millennium, the region had become fully incorporated into Central Andean interaction spheres, as it offered access to lowland produce and Amazonian communication networks indispensable for the functioning of highland chiefdom, state, and imperial political economies. Above all, we believe that it is important to recognize that it was not environmental constraints, but rather historical processes beginning with the Inca conquest and ending with widespread epidemic disease in Colonial times that transformed Chachapoyas from a thriving cultural crossroads into a remote and forgotten corner of the northeastern Peruvian Andes.

The Chachapoyas archaeological record has temporal gaps, but the same holds true for other Central Andean regions. While some archaeologists characterize the region as little studied and poorly known, the inadequate accounting of Chachapoyas archaeology is more a problem of scale. Popular twentieth-century accounts by explorers such as Savoy (1970) are marred by self-serving hyperbole, but they still confirm that most of the region's sites remain unknown or undocumented, concealed by uninhabited montane forest, or situated far from roads and villages. Like most archaeology conducted in the Central Andes, Chachapoya investigations have proceeded piecemeal, without an overarching strategy, with most attention directed to the largest and most elaborate monuments. Future work must proceed with well-conceived research designs, especially if we wish to understand pre-Inca socio-political and economic organization. If the pre-Inca ayllus of Chachapoyas were as loosely organized as Pease (1982) and others suggest, then how was

labor mobilized to erect such colossal fortifications as Kuelap? What political and religious institutions underwrote the expressive genius of Gran Pajatén and Los Pinchudos? What agricultural strategies so effectively underwrote cultural development in this challenging environment? These are questions with broad anthropological ramifications. Yet while a great deal of basic, systematic archaeological reconnaissance remains to be done, perhaps more pressing are site conservation and stabilization, and especially protection from looters. Chachapoyas archaeology, like the cloud forest that envelops it, is endangered.

ACKNOWLEDGMENTS The authors would like to thank Carol Mackey, Keith Muscutt, and Gary Urton for their helpful and constructive editorial comments on an earlier version of this chapter. The analysis and interpretation of data from Manachaqui Cave was supported by the National Science Foundation (Grant No. DBC-9200799) and the Wenner-Gren Foundation for Anthropological Research (Grant No. 5425).

REFERENCES

- Adams, William Y., Dennis P. Van Gerven, and Richard S. Levy, 1978, The retreat from migrationism. *Annual Review of Anthropology* 7: 483–532.
- Aldenderfer, Mark S., 2000, Cronología y conexiones: evidencias precerámicas de Asana. In *El Periodo Arcaico en el Perú. Hacia una Definición de los Orígenes*, edited by Peter Kaulicke, pp.378–392. *Boletín de Arqueología PUCP* 3. Pontificia Universidad Católica del Perú, Lima.
- Bandelier, Adolph, 1907, *The Indians and Aboriginal Ruins near Chachapoyas in Northern Peru*. Historical Records and Studies, New York.
- Bell, Robert, 2000, *Archaeological Investigation at the Site of El Inga, Ecuador*. Monographs in Anthropology, No. 1. University of Oklahoma, Sam Noble Oklahoma Museum of Natural History Publication, Norman.
- Bonavia, Duccio, 1968, *Las Ruinas del Abiseo*. Universidad Peruana de Ciencias y Tecnología, Lima.
- _____, 1998, La colonización incaica de la selva alta. *Arkinka* 34: 88–96.
- Briceño, Jesús and Keith Muscutt, 2004, Fardos funerarios Chachapoya en la Laguna Huayabamba. *Sian* 9 (15): 6–7.
- Bronk Ramsey, Christopher, 2005, *OxCal Program v3.10*. Oxford Radiocarbon Accelerator Unit Research Lab for Archaeology. Oxford.
- Buikstra, Jane and Kenneth Nystrom, 2003, Embodied traditions: the Chachapoya and Inka ancestors. In *Theory, Method and Practice in Modern Archaeology*, edited by Robert J. Jeske and Douglas K. Charles, pp. 29–48. Praeger Press, Westport.
- Burger, Richard L., 1992, *Chavin and the Origins of Andean Civilization*. Thames and Hudson, New York.
- _____, Michael Glascock, and Hector Heff, 1995, The Sources of the Obsidian Artifacts from Manachaqui Cave: A Preliminary Consideration. Unpublished manuscript in possession of the authors. Summarized in Church 1996.
- _____, 1984, Archaeological areas and prehistoric frontiers: the case of Formative Peru and Ecuador. In *Social and Economic Organization in the Prehispanic Andes*, edited by David L. Browman, Richard L. Burger, and Mario A. Rivera, pp. 33–71. BAR International Series, 194. Manchester.
- Chauchat, Claude, 1988, Early hunter-gatherers on the Peruvian coast. In *Peruvian Prehistory*, edited by Richard W. Keatinge, pp. 41–66. Cambridge University Press, Cambridge.
- Chepstow-Lusty, Alex, K. Bennett, J. FjeldsÅ, A. Kendall, W. Galiano, A. Tupayachi Herrera, A., 1998, Tracing 4000 years of environmental history in the Cuzco area, Peru, from the pollen record. *Mountain Research and Development* 18: 159–172.
- Church, Warren B., 1992, In “Current Research,” edited by Thomas Lynch. *American Antiquity* 57: 156.
- _____, 1994, Early occupations at Gran Pajatén, Peru. *Andean Past* 4: 281–318.
- _____, 1996, Prehistoric Cultural Development and Interregional Interaction in the Tropical Montane Forests of Peru. Ph.D. dissertation. Department of Anthropology, Yale University.
- _____, 1999, Más allá del Gran Pajatén: conservación de los recursos culturales del Parque Nacional Río Abiseo, Perú. *Revista del Museo de Arqueología, Antropología e Historia* 7 (1997): 205–248.
- _____, 2004, Manachaqui: buscando las raíces de los Chachapoya. *Sian* 9 (15): 4–5.

- _____ and Luis Valle Alvarez, n.d., Origin of Eastern Andean Cloud Forest Cultures. Report to the Foundation for Exploration and Research on Cultural Origins (FERCO). On file with FERCO and Columbus State University. Columbus, Georgia.
- Cuello Rodríguez, Antonio, 2000, Nuevas evidencias sobre la ocupación Inka en la provincia de Pataz, departamento de La Libertad: Yuracyacu. *Arkinka* 58: 84–95.
- Cornejo Garcia, Miguel A., Gene Savoy and Alberto Bueno Mendoza, 2004, El Gran Saposoa: Investigaciones y estudios. *Sian* 9 (15): 12–13.
- Curtin, Philip D., 1951, A survey of new archaeological sites in central Pataz, Peru. *Journal of the Washington Academy of Sciences* 41 (2): 49–63.
- D'Altroy, Terence N., 1992, *Provincial Power in the Inka Empire*, Smithsonian Institution Press, Washington D.C. and London.
- DeBoer, Warren R., 2003, Ceramic assemblage variability in the Formative of Ecuador and Peru. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 289–336. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Dillehay, Thomas D., 2000, *The Settlement of the Americas: A New Prehistory*. Basic Books, New York.
- Espinoza Soriano, Waldemar, 1967, Los señoríos étnicos de Chachapoyas y la alianza hispano-chacha. *Revista Histórica* 30: 224–333.
- Estrada, Víctor Emilio, 1958, *Las Culturas Pre-Clásicas, Formativas o Arcaicas del Ecuador*. Publicación del Museo Víctor Emilio Estrada, Guayaquil.
- Evans, Clifford and Betty J. Meggers, 1968, *Archaeological Investigations on the Río Napo, Eastern Ecuador*. Smithsonian Institution Press, Washington, D.C.
- Griender, Terence, 1978, *The Art and Archaeology of Pashash*. University of Texas Press, Austin.
- Guillén, Sonia, 1998, Arqueología de Emergencia: Inventario, Catalogación y Conservación de los Materiales Arqueológicos de los Mausoleos de la Laguna de los Cóndores. Report submitted to the Instituto Nacional de Cultura, Lima.
- _____, 2000, Evaluación y Delimitación del Sitio Arqueológico Llaqtacocha. Report submitted to the Instituto Nacional de Cultura, Lima.
- _____, 2002, The mummies of the Laguna de los Cóndores. In *Chachapoyas: The Lost Kingdom*, edited by E. González and R. León, pp. 345–387. AFP Integra, Lima.
- _____, 2003, Keeping the ancestors alive: the mummies from Laguna de los Cóndores, Amazonas, Peru. In *Mummies in a New Millennium: Proceedings of the 4th World Congress on Mummy Studies*, edited by N. Lynnerup, C. Andreasen and J. Berglund, pp. 162–164. Greenland National Museum and Archives and Danish Polar Center. Nuuk, Greenland.
- Hansen, Barbara C. S. and Donald T. Rodbell, 1995, A late-Glacial/Holocene pollen record from the eastern Andes of northern Peru. *Quaternary Research* 44: 216–227.
- Hester, James J., 1966, Late Pleistocene environments and early man in South America. *American Naturalist* 100: 377–388.
- Hyslop, John, 1990, *Inka Settlement Planning*. University of Texas Press, Austin.
- Idrovo Urigüen, Jaime, 2000, El formativo en la sierra ecuatoriana. In *Formativo Sudamericano, Una Revaluación*, edited by P. Ledergerber-Crespo, pp. 114–123. Ediciones Abya-yala, Quito.
- Isbell, William H., 1974, Ecología de la expansión de los Quechua-hablantes. *Revista del Museo Nacional* 40: 139–155.
- Jacobsen, J., J. B. Jorgensen; L. Kempfner Jorgensen and I. Schjellerup, 1987, “Cazadores de cabezas” en sitios pre-inca de Chachapoyas, Amazonas. *Revista del Museo Nacional* 48: 139–185.
- Kauffmann Doig, Federico, 1980, “Los Pinchudos”: exploración de ruinas intactas en la selva. *Boletín de Lima* 7: 26–31.
- _____, 1983, *Manual de la Arqueología Peruana*. Eighth edition, Peisa, Lima.
- Kaulicke, Peter, 1975, *Pandanche: Un Caso Formativo en los Andes de Cajamarca*. Seminario de Historia Rural Andina. Universidad Nacional Mayor de San Marcos. Lima.
- Kent, Jonathan, 1994, Faunal Remains of Manachaqui Cave, North Highlands, Peru. Unpublished manuscript in possession of the author. Summarized in Church 1996.
- Langlois, Louis, 1939, Utcubamba: investigaciones arqueológicas en este valle del departamento de Amazonas. *Revista del Museo Nacional* 8 (2): 224–249. Lima.
- _____, 1940a, Utcubamba: investigaciones arqueológicas en este valle del departamento de Amazonas. *Revista del Museo Nacional* 9 (1): 34–71. Lima.
- _____, 1940b, Utcubamba: investigaciones arqueológicas en este valle del departamento de Amazonas. *Revista del Museo Nacional* 9 (2): 191–228. Lima.

- Lanning, Edward P., 1967, *Peru Before the Incas*. Prentice-Hall, Englewood Cliffs, NJ.
- Lathrap, Donald, 1970, *The Upper Amazon*. Thames and Hudson, London.
- Lennon, Thomas J., Warren B. Church, and Miguel Cornejo García, 1989, Investigaciones arqueológicas en el Parque Nacional Río Abiseo, San Martín. *Boletín de Lima* 62 (11): 43–56.
- Lerche, Peter, 1986, *Häuptlingstum Jalca: Bevölkerung und Ressourcen bei den vorspanischen Chachapoya, Peru*. Dietrich Reimer Verlag, Berlin.
- , 1995, *Los Chachapoya y los Símbolos de Su Historia*. Ediciones y Servicios Gráficos César Gayoso, Lima.
- Lothrop, Samuel K., 1961, Early migrations to Central and South America. *Journal of the Royal Anthropological Institute* 91: 97–123.
- Lumbreras, Luis Guillermo, 1993, Chavín de Huántar: excavaciones en la Galería de las Ofrendas. *Materialien zur Allgemeinen und Vergleichenden Archäologie*, Band 51. Verlag Philipp von Zabern, Mainz am Rhein.
- McCormac, F. G., A. Hogg, P. Blackwell, C. Buck, T. Higham, and P. Reimer, 2004, SHCal04 Southern Hemisphere Calibration 0 – 10,000 cal BP. *Radiocarbon* 46: 1087–1092.
- Mejía Xesspe, Toribio, 1956, Appendice. Historia de la expedición arqueológica al Marañón de 1937. In *Arqueología del Valle de Casma*, by Julio C. Tello, pp. 321–337. Publicación Antropológica del Archivo “Julio C. Tello,” Universidad Nacional Mayor de San Marcos, Vol. I. Lima.
- Menzel, Dorothy, 1976, *Pottery Style and Society in Ancient Peru: Art as a Mirror of History of the Ica Valley, 1350–1570*. University of California Press, Berkeley.
- Morales Chocano, Daniel, 1993, *Compendio Histórico del Perú. Tomo I: Historia Arqueológica del Perú*. Editorial Milla Batres, Lima.
- Morales Gamarra, Ricardo, 2002, Los Pinchudos: arquitectura funeraria en Río Abiseo, San Martín (Parte 1). *Arkinka* 76: 92–101.
- , Ricardo, Luis Valle Álvarez, Warren B. Church, and Luis Coronado Tello, 2002, Los Pinchudos: mausoleo policromo de los Andes nor-orientales del Perú. *Sian* 8 (12): 3–41.
- Muscutt, Keith, 1998, *Warriors of the Clouds: A Lost Civilization in the Upper Amazon of Peru*. University of New Mexico Press, Albuquerque.
- Narváez, Alfredo, 1988, Kuélap: una ciudad fortificada en los Andes nor-orientales de Amazonas, Perú. In *Arquitectura y Arqueología*, edited by V. Rangel, pp. 15–142. Concytec, Chiclayo.
- , 1996a, La fortaleza de Kuelap 1. *Arkinka* 12: 92–108.
- , 1996b, La fortaleza de Kuelap 2. *Arkinka* 13: 90–98.
- and Ricardo Morales, 1999, Proyecto de Obras y Trabajos de Conservación, Restauración, Señalización, Habilitación del Circuito Turístico y Dotación de Servicios Turísticos del Monumento Arqueológico de Kuelap. Report submitted to the Instituto Nacional de Cultura, Lima.
- Nystrom, Kenneth C., in press, Late Chachapoya population structure prior to Inka conquest. *American Journal of Physical Anthropology*.
- Terada, Kazuo and Yoshio Onuki (eds.), 1982, *Excavations at Huacaloma in the Cajamarca Valley, Peru, 1979*. Report No. 2 of the Japanese Scientific Expedition to Nuclear America. University of Tokyo Press, Tokyo.
- Panaifo, Mónica, Sonia Guillén, Adriana von Hagen, and Rosío Díaz, 2005, Evaluación del Circuito de Sitios funerarios y Residenciales en las Lagunas de los Cóndores, Quintecocha y La Mona. Report submitted to the Instituto Nacional de Cultura, Lima.
- Pearsall, Deborah M., 1989, Adaptation of prehistoric hunter-gatherers to the high Andes: the changing role of plant resources. In *Foraging and Farming. The Evolution of Plant Exploitation*, edited by D. R. Harris and G. C. Hillman, pp. 318–332. Unwin Hyman, London.
- , 1992, The origins of plant cultivation in South America. In *The Origins of Agriculture*, edited by C. Wesley Cowan and Patty Jo Watson, pp. 173–206. Smithsonian Institution Press, Washington, D.C.
- , 1996, Appendix F. In *Prehistoric Cultural Development and Interregional Interaction in the Tropical Montane Forests of Peru*, by Warren B. Church. Ph.D. dissertation. Department of Anthropology, Yale University.
- Pease, Franklin, 1982, The formation of Tawantinsuyu: mechanisms of colonization and relationship with ethnic groups. In *The Inca and Aztec States, 1400–1800*, edited by George A. Collier, Renato I. Rosaldo and John D. Wirth, pp. 173–198. Academic Press, New York.
- Porras, Pedro Ignacio, 1987, *Investigaciones Arqueológicas en las Faldas de Sangay, Provincia Morona-Santiago. Tradición Upano*. Centro de Investigaciones Arqueológicas, Pontificia Universidad Católica del Ecuador, Quito.

- Proulx, Donald A., 1985, *An Analysis of the Early Cultural Sequence in the Nepeña Valley, Peru*. Research Report No. 25. Department of Anthropology, University of Massachusetts. Amherst.
- Ravines, Rogger, 1972, Secuencia y cambios en los artefactos líticos del sur del Perú. *Revista del Museo Nacional* 38: 133–184.
- , 1978, Antiguos sitios de ocupación en el río Huayabamba, Perú. *Historia, Problema y Promesa. Homenaje a Jorge Basadre*, Vol. 1, pp. 521–532. Pontificia Universidad Católica del Perú, Lima.
- Raymond, J. Scott, 1988, A view from the tropical forest. In *Peruvian Prehistory*, edited by Richard W. Keatinge, pp. 279–300. Cambridge University Press, Cambridge.
- Reichlen, Henri and Paule Reichlen, 1949, Recherches archéologiques dans les Andes du Cajamarca. Premier rapport de la Mision Ethnologique Française au Pérou septentrional. *Journal de la Société des Américanistes* 38: 219–246.
- and Paule Reichlen, 1950, Recherches archéologiques dans les Andes du haut Utcubamba. *Journal de la Société des Américanistes* 39: 219–246.
- Rojas Ponce, Pedro, 1970, The ruins of Pajaten. *Archaeology* 20 (1): 9–17.
- Rostworowski, María, 1993, [1963], Dos manuscritos inéditos con datos sobre Manco II, tierras personales de los Incas y mitimaes. In *Ensayos de la Historia Andina: Élite, Etnias y Recursos*, pp. 147–170. Instituto de Estudios Peruanos, Lima.
- Rowe, John H. and Dorothy Menzel, 1967, Introduction. In *Peruvian Archaeology, Selected Readings*, edited by John H. Rowe and Dorothy Menzel, pp. v–x. Peek Publications, Palo Alto.
- Ruíz Barcelos, Jorge, 2004, Purum Llacta: centro poblado Chachapoya dedicado a la agricultura. *Sian* 9(15):10–11.
- Ruíz Estrada, Arturo, 1972, *La Alfarería de Cuelap: Tradición y Cambio*. B.A. thesis. Universidad Nacional Mayor de San Marcos, Lima.
- , 1985, Los monumentos arqueológicos de Leimebamba. *Boletín de Lima* 7 (42): 13–22.
- Sauer, Carl O., 1944, A geographic sketch of early man in America. *Geographical Review* 34: 529–573.
- Salomon, Frank, 1986, Vertical politics on the Inka frontier. In *Anthropological History of Andean Politics*, edited by John V. Murra, Nathan Wachtel and Jacques Revel, pp. 89–118. Cambridge University Press, Cambridge.
- Savoy, Gene, 1970, *Antisuyu*. Simon and Schuster, New York.
- Schjellerup, Inge, 1997, *Incas and Spaniards in the Conquest of Chachapoyas. Archaeological and Ethnohistorical Research in the North-eastern Andes of Peru*. GOTARC, series B, Gothenburg Archaeological Theses, 7. Göteborg University, Gothenburg.
- , 1999, Aspects of the Inca frontier in the Chachapoyas. *Tawantinsuyu* 5: 160–165.
- , Mikael Kamp Sorensen, Carolina Espinoza, Victor Quipuscoa and Victor Pena, 2003, The forgotten valleys: past and present in the utilization of resources in the ceja de selva, Peru. *The National Museum of Denmark, Ethnographic Monographs*, 1. Copenhagen.
- Shady Solís, Ruth, 1987, Tradición y cambio en las sociedades formativas de Bagua, Amazonas, Perú. *Revista Andina* 5 (2): 457–488.
- and Hermilio Rosas, 1979, El Complejo Bagua y el sistema de establecimientos durante el Formativo en la sierra norte del Perú. *Ñawpa Pacha* 17: 109–142.
- Stone-Miller, Rebecca, 1992, *To Weave for the Sun: Andean Textiles in the Museum of Fine Arts, Boston*. Museum of Fine Arts, Boston.
- Stuiver, M. and G. W. Pearson, 1993, High-precision bidecadal calibration of the radiocarbon time scale, A.D. 1950–500 B.C. and 2500–6000 B.C. *Radiocarbon* 35: 1–23.
- Tello, Julio C., 1942, Origen y desarrollo de las civilizaciones prehistóricas andinas. *Actas y Trabajos Científicos del XVII Congreso Internacional de Americanistas, Lima 1939*. Tomo I, pp. 589–720.
- , 2004, *Arqueología de Cajamarca: Expedición al Marañón-1937*. Universidad Nacional Mayor de San Marcos, Lima.
- Terada, Kazuo and Ryozi Matsumoto, 1985, Sobre la cronología de la tradición Cajamarca. In *Historia de Cajamarca I, Arqueología*, edited by Fernando Silva Santisteban, Waldemar Espinoza Soriano and Rogger Ravines, pp. 67–90. Instituto Nacional de Cultura, Cajamarca and Corporación de Desarrollo de Cajamarca, Cajamarca.
- and Yoshio Onuki (eds.), 1982, *Excavations at Huacaloma in the Cajamarca Valley, Peru, 1979*. Report No. 2 of the Japanese Scientific Expedition to Nuclear America. University of Tokyo Press. Tokyo.
- Urton, Gary, 2001, A calendrical and demographic tomb text from northern Peru. *Latin American Antiquity* 12 (2): 127–147.

- Vega Ocampo, Abel, 1978, Complejo arqueológico de Uchumarca: descripción del elemento cerámica de Pirca-Pirca. *Investigación Arqueológica*, No. 2, pp. 8–19. Universidad Nacional de Trujillo. Trujillo.
- von Hagen, Adriana, 2000, Nueva iconografía chachapoya de la Laguna de los Cóndores. *Iconos* 4 (2): 8–17.
- , 2002a, *Los Chachapoya y la Laguna de los Cóndores*. Biblos, Lima.
- , 2002b, Chachapoya iconography and society at Laguna de los Cóndores, Peru. In *Andean Archaeology 2: Art, Landscape and Society*, edited by Helaine Silverman and William H. Isbell, pp. 137–155. Kluwer Academic/Plenum Publishers, New York and London.
- , 2002c, People of the Clouds. In *Chachapoyas: The Lost Kingdom*, edited by E. González and R. León, pp. 24–261. AFP Integra, Lima.
- , 2004, Plumas para el rey: cazadores de aves en la Laguna de los Cóndores. *Sian* 9 (15): 24–25.
- , n.d. Stylistic Influences and Imagery in the Museo Leymebamba Textiles.
- and Sonia Guillén, 1998, Tombs with a view. *Archaeology* 51 (2): 48–54.
- Young, Kenneth R. and Blanca León, 1999, *Peru's Humid Eastern Montane Forests*, DIVA Technical Report No. 5. Danish Environmental Research Institute, Copenhagen.
- Zevallos, Jorge, 1995, El área geográfico-cultural de la prehistoria de Chachapoyas: una nueva postulación. *Gaceta Arqueológica Andina* 24: 13–23.

The Llanos de Mojos

JOHN H. WALKER

INTRODUCTION

The Llanos de Mojos (hereafter Mojos) is a tropical savanna in the Bolivian Amazon, shaped by cycles of drought and flood and the labor of generations of farmers. The accounts of Jesuit missionaries from the mid 1600s described large villages with powerful chiefs and influential shamans in the savanna. Was this true? And what kind of economy would have supported these societies? The answers first became apparent in the 1950s with the spread of air travel that revealed artificial earthworks, including agricultural fields, causeways and canals on the landscape below. Recent archaeological research confirms that Mojos was one of several areas within the Amazon basin that had large sedentary populations.

Mojos is a research frontier where scant archaeological investigation has been conducted compared to, say, Syria or the Yucatan Peninsula, whose areas are similar. Mojos is a fascinating test case to understand relationships between politics and economics in the Amazon basin over the long term. Because of its location between the Xingu, middle Amazon and Andes, Mojos is also relevant to discussions of cultural history and the movement of groups of people across the continent. Finally, study of the region's landscapes shows how pre-Columbian peoples acted on their understanding of the relationship between nature and culture to build their environment. This chapter reviews the physical and human geography of Mojos, describes previous archaeological research, and then discusses political and social organization, analyses of interregional contacts, and the creation of anthropogenic landscapes.

GEOGRAPHY AND ENVIRONMENT

Although it shares many characteristics with other parts of the Amazon basin, the combination of strong seasonality in rainfall and the flooded savanna ecosystems makes Mojos a distinctive geographical region. Mojos is a shallow basin covering approximately 110,000 km²

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

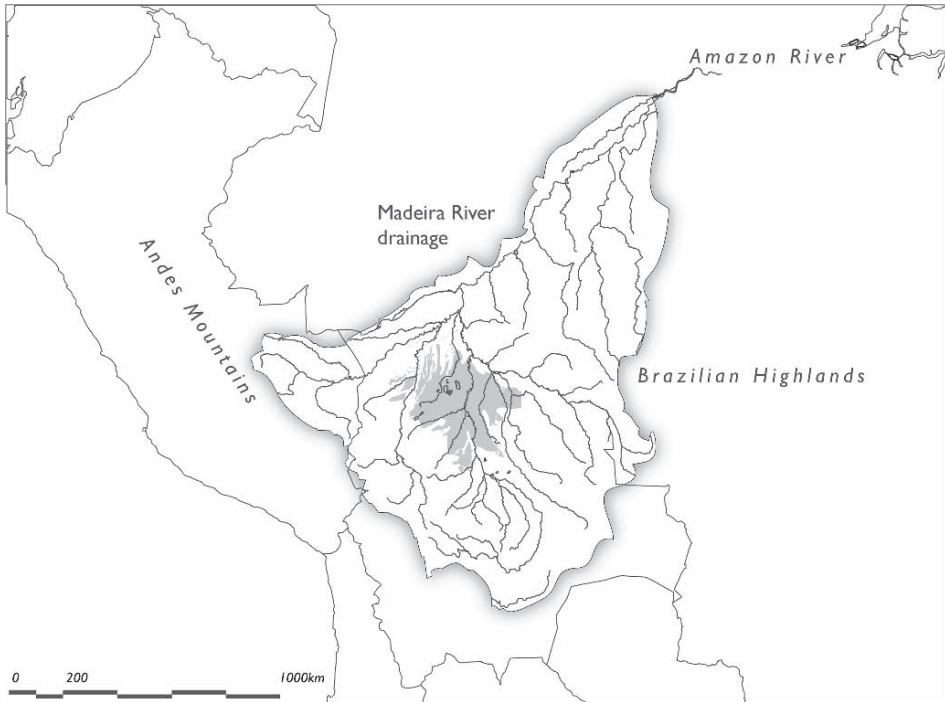


Figure 46.1. Location of the Llanos de Mojos (shaded area) within the Madeira River basin of South America. (John Walker)

between the Andes to the west and south and the uplands of the Brazilian shield to the east and north (Hanagarth 1993; Langstroth 1996; Denevan 2001) (Figure 46.1). The soils derive primarily from Pleistocene lacustrine sediments, more than two kilometers deep near the Andes and a few hundred meters deep near the Brazilian shield. This thick cover makes stone usable for construction or tools very rare. Topographical relief is minimal, with elevations that only vary between 150 and 170 masl across most of the region.

Lying entirely within the tropics, Mojos has a climate characterized by high, stable average temperatures, high humidity and high rainfall. Aside from human activity, the determining ecological feature is the seasonal cycle of flood and drought, which affects soils, plants and animals. Mojos is therefore defined as a humid savanna, a grassland environment with a 2- to 7-month dry season and a total annual rainfall varying between 1,500 and 1,800 mm (Harris 1980). The dry season lasts from May through September, when weeks pass without precipitation. During these months the passage of southern cold fronts occasionally breaks the heat and humidity, dramatically lowering temperatures and sometimes bringing heavy rain.

The wet season lasts roughly from November through March. During these months widespread flooding changes the landscape in two different ways. Modern inhabitants call these two types of flooding “water from below” and “water from above.” The first kind of flooding results when tributaries of the Mamoré River rise because of high water levels downstream. When the Mamoré is high, these rivers “back up” and inundate large areas. Some rivers that are easily forded in the dry season are several hundred meters across in

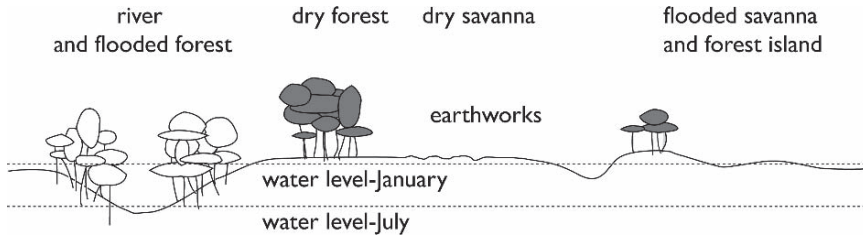


Figure 46.2. Schematic diagram illustrating the patterning of local environments in Mojos. (John Walker)

the wet season. The second type of flooding is the result of heavy local rainfall. Rains can leave 20 or 30 cm of standing water on poorly drained terrain, even though that terrain may be at a higher elevation. During the dry season, this water drains more quickly, and these areas remain underwater for a short time. During the wet season, rainfall inundates large areas, making them much more difficult to cross on foot.

The interaction of these two processes with local topography creates a mosaic of environments. Low-lying gallery forests along rivers and streams contrast with higher river levees and savannas alongside. Topography and drainage influence the spatial arrangement of plant communities because soils vary with drainage and differences in elevation. Broadly speaking, four types of environments are present today: flooded forests, dry forests, dry savannas and wet savannas (Figure 46.2).

Flooded forests are often found in areas of lower elevation along rivers and can be underwater for as much as half of the year. Trees that are submerged for months tower overhead in the dry season. Many flooded forests are located in “galleries” along the rivers, on the sloping banks rather than the adjacent levees. Dry forests are elevated above floodwaters, and are well drained so that rainwater does not accumulate. These forests are often located on levees along the rivers, and in forest “islands” along smaller creeks and abandoned river channels. Dry savannas are also elevated and well drained. Many dry savannas are located on river levees. There are many transitional zones between dry forest and savanna, and it is difficult to separate the two categories clearly. Finally, wet savannas are found both in areas that are elevated but poorly drained, and in lower elevation back slopes. Some soils in the wet savannas accumulate sediment and organic material from annual floods. Older rivers have also cut channels across the savanna, leaving behind levees and back slopes.

Differences in earthworks have prompted archaeologists to distinguish four “divisions” within the Mojos region (Denevan 1966, 2001; Erickson 2006) (Figure 46.3). Each of these four divisions has a distinct form of landscape modification:

- *North.* Large raised fields comprise the most imposing element of the built environment. Occupation debris suggests that villages with 1,000–2,000 inhabitants could have been present (Walker 2004) (Figure 46.4).
- *South.* The built environment is composed of large mounds, some of which were burial mounds. This is where most archaeological work in Mojos has taken place (Nordenskiöld 1913, 1920, 1924; Bennett 1934; Dougherty and Calandra 1981, 1981–82, 1984; Erickson and Balée 2006; Prümers 2004). Many of the mounds contain urn burials, and some of them contain several dozen burials. The largest mounds are close to 20 m tall, and some of them are hundreds of meters across.

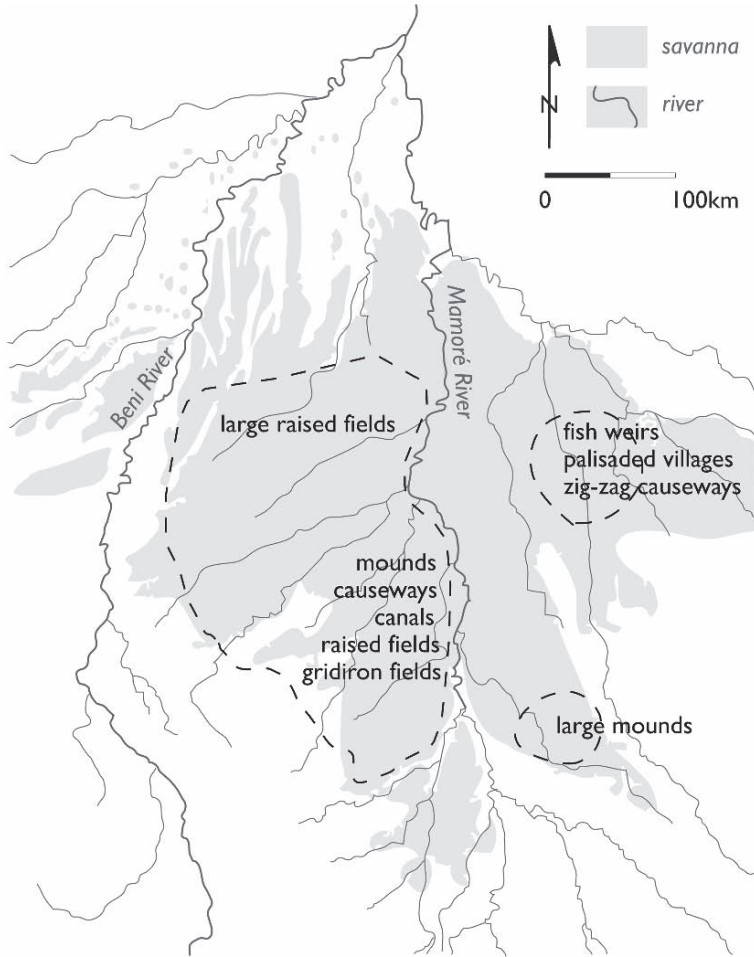


Figure 46.3. Map illustrating the regional diversity of anthropogenic landscapes in Mojos. (Adapted from Denevan 1966: fig. 4)

- *East.* Earthworks include long causeways, zig-zag causeways and circular ditches (Erickson 1996; Dougherty and Calandra 1985). The circular ditches are distinct from the landscapes modified by the zig-zag causeways, which Erickson interprets as weirs for the harvesting of fish (Figure 46.5).
- *West.* Here are perhaps the most complex built environments, where canals, causeways, mounds and several kinds of raised and ditched fields were combined into integrated landscapes (Erickson 1980; Erickson and Walker ms.).

Many raised fields seem well suited to the production of root crops, such as manioc or New World taro. Because raised fields reduce the effects of flooding, they help protect root crops from rotting. Botanical remains from a raised field excavation show that *Xanthosoma*, *Anatto* and *Ilex* were being grown: a root crop, a dye, and a stimulant, respectively (Erickson 1995). This roster suggests that multi-cropping was a cultivation strategy, and



Figure 46.4. Reprojected aerial photograph of large raised fields and settlement north of Santa Ana del Yacuma, along the Iruyañez River. (John Walker)

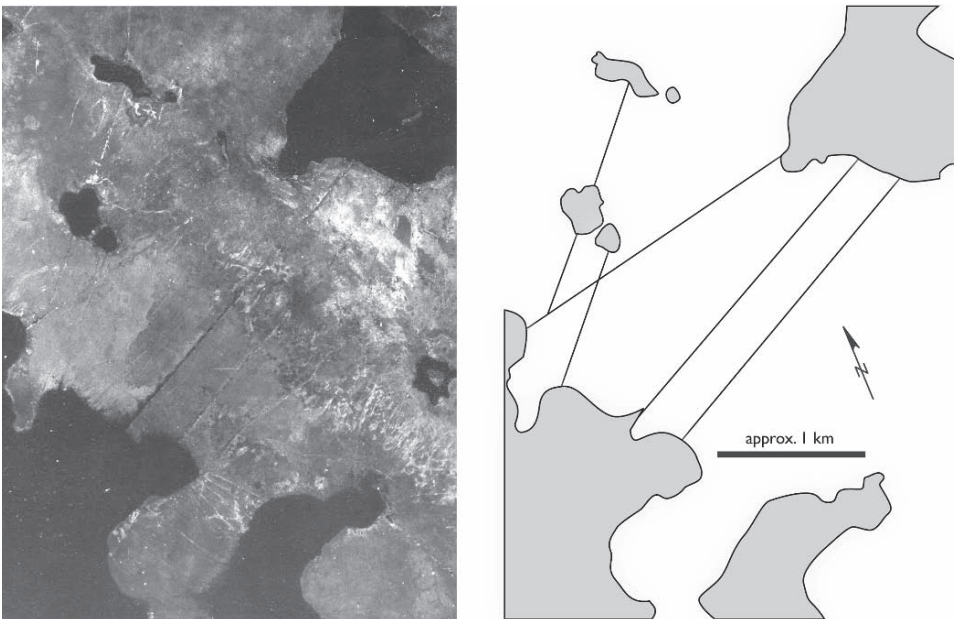


Figure 46.5. Long causeways near Baures. a. Aerial photograph; b. Diagram (adapted from Erickson 2000: fig. 4). (John Walker)

that industrial products were as important as food crops. Mojos is within the southern Amazon basin, which has been proposed as the “hearth” of both manioc and peanut cultivation (Olsen and Schaal 2001; Jarvis et al. 2002). Deposits of anthrosols indicate large areas of human occupation along the large tributaries and main course of the Amazon River. Appearing as a distinct soil type on national surveys, anthrosols are nuanced evidence both for settlement and for intentional modification of soils for agricultural uses (Lehman et al. 2003; Glaser and Woods 2004).

The human geography of Mojos is also complex. According to the Summer Institute of Linguistics, thirteen languages are present in Mojos today, including groups classified as Arawak (Baure, and Mojo, which is split into Ignaciano and Trinitario), Tupi (Guarayu and Siriono), Tacanan (Ese Ejja and Cavineña), Panoan (Chácobo), and isolated languages (Canichana, Cayuvava, Itonama, Movima and T'simane) (Gordon 2005). Several of these are extinct or nearly extinct (Baure, Canichana, Cayuvava and Itonama). This situation suggests that before the European conquest a variety of languages were present, as in other regions within the upper Amazon. A recent study of mitochondrial DNA among modern populations suggests that considerable genetic diversity is represented (Bert et al. 2004). The study is a significant step and continued research will provide an independent line of evidence to compare with linguistic and archaeological data about population history.

HISTORY OF RESEARCH

The first archaeologist to carry out research in Mojos was Erland Nordenskiöld, who excavated several large mound sites near Trinidad and surveyed material culture throughout the region (Nordenskiöld 1913, 1924). His research was the basis for Métraux's summary of eastern Bolivian archaeology and the ceramic data from these excavations were later interpreted in light of evidence from across the entire South American lowlands (Métraux 1942; Howard 1948). Denevan's subsequent geographical studies of earthworks revolutionized the study of pre-Columbian Mojos, introducing and carefully documenting the scale of landscape modification (Denevan 1966, 2001). Although Denevan did not excavate, his aerial and pedestrian survey of earthworks completely changed the understanding of pre-Columbian Mojeño societies and placed them in a larger context of intensive agriculture throughout the Americas. His book is still the most useful reference on Mojos.

Since Denevan drew attention to the region, a number of archaeological projects have conducted research in the area. Some have focused on documenting and analyzing ceramic industries, attempting to establish chronologies (Dougherty and Calandra 1981, 1981–82; Calandra and Salceda 2004). A few projects have carried out fieldwork at a single location (Arnold and Prettol 1998; Bustos 1978; Ryden 1941). Three projects currently active in Mojos are the Finnish Archaeological Project (Siriäinen and Korpisaari 2002, 2003), the KAVA project (Prümers 2004) and the Proyecto Agro-Arqueológico del Beni (PAAB) (Erickson 1995, 2006; Erickson and Balée 2006; Erickson and Walker ms.; Walker 2004). The Finnish project has carefully documented a fortified site in the far north along the Beni River. The KAVA project has used careful analysis of stratigraphy in combination with ceramic analysis to interpret the large Mendoza mound in southeastern Mojos. The PAAB project has focused on archaeological landscapes, using remote sensing, survey and test excavations in locations throughout Mojos. Archaeologists working in Mojos also depend on information from other sources: historical, ethnographic, and geographic.

Mojos culture history continues to be debated by the archaeologists. Their focus is on three critical issues: social and political organization, contact between Mojos and neighboring areas, and the creation of anthropogenic landscapes.

SOCIAL AND POLITICAL ORGANIZATION

Mojos drew the attention of European explorers in the sixteenth century as they sought opportunities to extract riches from indigenous states very quickly. El Dorado, Paitití and Gran Mojos were all names for a mythical kingdom of gold, or for its leader. Early historical documents describing the area were written in the course of these explorations, and later as part of Jesuit missionary work in Mojos. These documents described large villages and powerful chiefs; one missionary claimed in a matter-of-fact way to have met this king himself.

The image of El Dorado has recently been the rhetorical focus of a discussion of social and political organization in Amazonia (Meggers 2004; Stahl 2002; Heckenberger et al. 1999). In Mojos, this discussion considers two lines of evidence, historical and archaeological. Denevan (1966, 2001) and Block (1994) summarize the early historical sources. The documents describe groups of people living in large villages (larger than 200 people, and in many cases larger than 500 people); alliances between large villages; and political leaders with considerable power, including the power to kill offenders. These sources originally led Julian Steward, in the *Handbook of South American Indians*, to classify the societies of Mojos with “Circum-Caribbean” societies, in contrast to simpler “Tropical Forest” societies that characterized most of Amazonia (see Chapter 1 in this volume).

Historical documents must be carefully interpreted, but this does not mean that early descriptions of Mojeño peoples should be discarded. Jesuit accounts in particular, in their comprehensiveness and detail, provide relevant information for the seventeenth century. These documents (which have been analyzed only in part) indicate that a variety of societies were present in Mojos at the time of contact. They describe hunters, accomplished farmers (but say little about earthworks), weavers, potters, feather workers, fishermen and gatherers. They contrast Indians who wore clothes and were “gentle,” with “wild,” naked cannibals. The ethnohistoric record suggests that Mojos was a multilingual and perhaps multiethnic region, with many different forms of social and political organization present at the same time.

The outlines of this argument changed in the late 1950s, when a number of different researchers independently recorded the existence of earthworks on a regional scale. Denevan showed that pre-Columbian people had produced many artificial landscapes across Mojos, of many types, and over a great area. This placed Mojos, as an example of raised field agriculture, alongside many important locations around the Americas, including the Andean altiplano, Colombia, Venezuela, the Guianas, West Mexico, the Valley of Mexico, the Maya region, and the upper Midwestern United States (see Chapters 11, 12, 13, 16, 17, 23 in this volume). Mojos is an example of the intensive use of the landscape by indigenous Amazonians, implying greater social and political complexity than generally admitted for pre-Columbian Amazonia. The anthropogenic landscape allows this organization to be studied on three scales: the regional scale of broad divisions in the archaeological record, the local scale of the creation and maintenance of the agricultural landscape, and the intermediate scale of large political units.

At the regional scale (across tens to hundreds of kilometers), differences between the four landscape types correspond to differences in how much labor was required to reshape

the terrain, and how much coordination would be required to use and maintain it. For example, the amount of earth moved per unit area can serve as a proxy for labor mobilization. In rough terms, the average figure is highest for the west, followed by the east, then the north and finally the south. The coordination of different types of earthworks and water control also would have been the most complex in the west and east, and much less so in the north and south. Differences in labor costs vary within each area, but the general trends suggest that there were significant differences in the organizational solutions devised by farmers. This in turn suggests diversity in the social and political organization of Mojos raised field farmers.

At the local scale (across tens to hundreds of meters), there is similar evidence for diversity among farmers. In the northern region, the spatial patterns of large raised fields were analyzed in conjunction with estimates of raised field construction costs and production. This suggests that groups of between 30 and 100 people might have been responsible for the construction of many large fields, in discrete spatial groups. These groups of people are likely to correspond to a local social unit (Walker 2000, 2004). A similar analysis is underway in western Mojos, along the Apere River, where there are spatially discrete areas of raised fields that may correspond to local social units (Erickson and Walker ms.). The complexity of the built environment creates many opportunities for analysis and for the study of spatial pattern. Scholars of many different theoretical perspectives agree that landscapes contain information about the social and political organization of the peoples who produce it. These minimal units within Mojos landscapes are indicators of the smallest units of social and political organization.

Finally, attention should be focused on the intermediate scale between the local and the regional, because this is where the evidence of what is usually called social and political organization will be found. If the predecessors of the “chiefdoms” described in the ethno-historic literature were associated with raised field construction and maintenance, then it will be possible to discern outlines of large units within the spatial patterns of earthworks. Connections between political organization and agricultural organization are to be investigated and not assumed. In one case where settlement evidence is associated with raised field patterning, it appears that large settlements were associated with a comparatively simple agricultural landscape (Walker 2004).

CONNECTIONS TO OTHER REGIONS

Mojos is near the geographic center of South America, between the Andes mountains and the Brazilian highlands and upstream from the middle Amazon. Discussions of cultural contact and migration in South America have focused on the origins of complex society at the mouth of the Amazon and the movement of language groups throughout the Amazon basin (Lathrap 1970, 1977; Heckenberger 2005; Hornborg 2005). Enough information is available from several other areas to place Mojos in a larger context.

Altiplano

The well-known societies of the altiplano and southern Andes were close to Mojos in both space and time. Tiwanaku is less than 300 km from western sites associated with agricultural earthworks, and several Mojeño contexts date to Tiwanaku times and earlier (Walker 2004). The ceramics recovered in Nordenskiöld's excavations made it possible to speculate

on links to the Andes. Although some ceramic similarities exist, possibly indicating that the southeastern mound cultures were derivative from the highlands, strong arguments have been advanced that these ceramics have more in common with Amazonian examples from further downstream and with other upper Amazonian ceramics (Bennett 1936; Howard 1948; Lathrap 1970).

Raised field agriculture is well documented in Tiwanaku (see, e.g., Kolata 1993). As the scale and antiquity of raised field use in Mojos becomes clearer, this becomes relevant to the question of the relationship between Tiwanaku and Mojos (Hornborg 2005). Such systems represent the accumulation of labor over centuries, and it is unlikely that the technology diffused rapidly either from Mojos to the altiplano, or vice-versa. The slow process of creating agrodiversity through building agricultural landscapes suggests that there was no single moment of innovation in the development of raised field agriculture. There are many differences in form and function between raised fields, associated with different agricultural problems and different social and political organizations.

A Finnish-Bolivian project has recovered evidence of an Inca presence, well dated to the Late Horizon, at a site along the Beni River in far northern Mojos (Siiriäinen and Korpisaari 2002, 2003). Both the ceramic evidence and radiocarbon dating are convincing. The nature of the occupation is unclear, although it seems that material evidence of the Incas is not widespread, and that highlanders were interested in lowland resources. The location along the Beni, a major river that reaches into the highlands is unsurprising. Being near its confluence with the Madre de Dios River would have furthered trade and contact with large areas of the lowlands, both in Mojos and further downstream.

Intensive agriculture was widespread in Mojos, and estimates of its extent continue to expand, while those of its antiquity continue to deepen. Improved remote sensing resources in combination with survey will allow a more accurate estimate in the future, but new earthworks continue to be discovered, and it is likely that agricultural earthworks in Mojos were of the same order of magnitude as those in the altiplano. Mojos represents both a comparative case of the development and abandonment of raised field farming and possibly a shared history with the altiplano.

Eastern Slopes

Between Mojos and the altiplano lie the eastern slopes of the Andes, a region sometimes characterized as a frontier, but which clearly has its own identity. An increasing amount of research is being conducted in the humid valleys of the eastern slopes. Stone axes, which are rare but widespread in Mojos, may indicate contact with the eastern slopes. Material for ground stone tools does not appear naturally in Mojos, and the best sources are in the Andes (although the Brazilian shield is another possibility). Such axes could have had symbolic value, but because they do not occur in large numbers, it is unlikely that they played a pivotal role in agriculture. Stone axes would have been less effective than the use of fire for clearing vegetation. Slash-and-burn agriculture probably was not widespread before the arrival of the Spanish, and there are good reasons to believe that this form of agriculture developed after the advent of metal tools (Denevan 2001).

There are similarities between Mojos ceramics and some of the ceramic industries present in the altiplano and the Bolivian eastern slopes before Tiwanaku (Lathrap 1970). These similarities point to the ease with which cultural traits, and ceramic attributes in particular, may have passed between the lowlands and highlands. Environmental differences seem to make strong boundaries, but they were crossed repeatedly in the past, as they are

being crossed today. It may be more accurate to think of these regions as all being part of a single area with regard to many characteristics.

Xingu

More archaeological work is being done in the highlands of Brazil drained by the Xingu River, and there are several parallels to some Mojeño cultures. Heckenberger (2005; see Chapter 47 in this volume) has detailed the antiquity and extent of settlement in the Xingu. Large settlements are associated with ringed ditches and long causeways, and connections between the archaeological evidence and modern Arawak speakers seem strong (see also Hornborg 2005). The landscapes of eastern Mojos also include ringed ditches and several kinds of causeways (Erickson 2000). In addition to being the region within Mojos closest to the Xingu, the Baure speakers from whom the region gets its name are Arawak speakers. Arawak speakers (including both Baure and Mojo speakers) make up a large part of the diversity of cultures in Mojos, but they are not exclusively associated with either earthworks or political complexity. The Movima, Itonama, Canichana and Cayuvava are other modern language groups with similar associations that lived across Mojos and are known from ethnohistoric sources.

Middle Amazon

There are significant parallels between the ceramics of the middle Amazon and those of Mojos, and this information is relevant to the reconstruction of cultural history throughout the Amazon basin. New research is taking place along the middle Amazon that builds on previous studies that focused primarily on ceramics. Barrancoid style ceramics, first described along the lower Orinoco in Venezuela, bear a resemblance to many ceramic styles across the Amazon basin. Barrancoid traits have been noted among the ceramics excavated by Nordenskiöld, and there may be other Barrancoid assemblages as well (Walker 2004). The relationship between Icotiara, Guarita and other ceramics from the middle Amazon to Mojeño ceramics suggests that Mojeños were a part of regional processes.

ANTHROPOGENIC LANDSCAPES

Archaeological studies in South America and, specifically, Amazonia have frequently focused on the effects of the environment on human society. Particularly due to preservation in the coastal deserts, the great antiquity of plant domestication in South America is well documented. The agricultural earthworks, savannas and forests of Mojos are examples of a separate but related phenomenon, the domestication of landscape.

Domestication of the landscape means the use of tools such as fire and the control of water to change distributions of plants and animals (Erickson 2006). This makes the environment much more useful, with fruits more easily harvested, animals more easily hunted, fish more easily caught, and distances more easily traversed. This depends more on the creation of desirable attributes in the environment, and less on the manipulation of genetic material to push species across the boundary between “wild” and “domesticated.” Mojos is one of many places where this process has taken place, and three examples demonstrate how the landscape was domesticated.

First, the modern Siriono people of southeastern Mojos use a wealth of knowledge of forest species, modifying the distribution of economically useful trees (Erickson and Balée 2006). Concentrations of peach palm trees show that much of the “pristine” forest in eastern Bolivia is, in fact, the result of generations of modification. Peach palms have many economic uses, from consumption of their high-fat fruits to the making of palm wine. Because the life cycle of trees is long, genetic modification of tree crops is unlikely. Instead, the imprint of human activity takes the form of the location of trees within the forest. Balée estimates that a considerable portion of the forests of the Amazon basin may have been modified in this way.

Second, the construction of causeways in the flooded savanna modifies the environment in several ways. It makes low-lying areas easier to traverse on foot, and could make higher areas easier to pass in a canoe, using the canal alongside the causeway. In the wet season, when large areas are inundated, causeways can change flows of water over many square kilometers. A well-maintained causeway only two meters high, if it crosses between the levees of two rivers, can impound many square kilometers of water, maintaining inundation and harvesting rainfall for agricultural uses.

Third, the built environment may have made hunting and fishing easier. In the wet season, floods force prey animals onto scarce dry land. Modern inhabitants keep prey “on the hoof” in such situations, and hunt them at leisure (as long as the flooding conditions persist). In the north, for example, there is a strong correlation between dry forest and human settlement and it might have been feasible to use the landscape to predict the movements of prey animals (Walker 2004). To a much greater extent, the builders of “zig-zag” causeways in the northeast could have used their flooded savannas to harvest fish (Erickson 1996). The canals in raised fields also create environments in which frogs, snails and insects flourish, attracting waterfowl as well. Finally, raised field crops themselves would attract animals, which in many cases could be resources rather than pests.

The modification of the savanna makes Mojos a clear example of how native Amazonians modified their environment to make landscapes. Domestication of the landscape is not unique to Mojos by any means, but this case highlights the importance of processes that change the availability of resources, without necessarily changing the genetic code of plants and animals.

CONCLUSION

The archaeological record of pre-Columbian Mojos has only been sketched in this chapter [Note 1]. The combination of well-preserved earthworks and well-developed ceramic industries provides an opportunity to combine studies of the archaeological landscape with cultural-historical goals. Such a synthesis can provide common ground between local interests in archaeology and international interests in questions of the Amazonian landscape. The variety of connections that can be drawn to other parts of South America suggests that there were distinctive aspects to a Mojeño way of life, but also shared histories with groups of people from outside the savanna.

Evidence for the complexity of anthropogenic landscapes in South America continues to accumulate from widely divergent settings: geoglyphs on the Peruvian coast; fields and terracing in the Andes; and raised fields and earthworks from around the lowlands. Similarly, evidence for the variety and complexity of social organization in South America, well attested in the Andes, is also mounting for the Amazonian lowlands. These two

features of the archaeological and ethnohistoric record—agricultural landscapes and complex political organizations—have been the defining characteristics of Mojos. As more evidence is assembled and compiled, the unique position of Mojos will be seen as the norm for much of the Amazon basin: a complex, multilingual mix of different economic strategies and ethnic groups, with a turbulent history over many millennia. At that point, the archaeology of the Llanos de Mojos and of the Amazon basin will have matured.

NOTE

1. The reader will find extensive bibliographies for further reading in Erickson (2006) and Walker (2004).

REFERENCES

- Arnold, Dean E. and Kenneth A. Prettol, 1988, Aboriginal earthworks near the mouth of the Beni, Bolivia. *Journal of Field Archaeology* 15: 457–65.
- Balée, William and Erickson, Clark L. (eds.), 2006, *Time and Complexity in Historical Ecology*. Columbia University Press, New York.
- Bennett, Wendell C., 1936, *Excavations in Bolivia*. The American Museum of Natural History, New York.
- Bert, F., A. Corella, M. Gené, A. Pérez-Pérez and D. Turbón, 2004, Mitochondrial DNA diversity in the Llanos de Moxos: Moxo, Movima and Yuracare Amerindian populations from Bolivia lowlands. *Annals of Human Biology* 31 (1): 9–28.
- Block, David, 1994, *Mission Culture on the Upper Amazon: Native Tradition, Jesuit Enterprise and Secular Policy in Moxos, 1660–1880*. University of Nebraska Press, Lincoln.
- Bustos, Victor, 1978, *Investigaciones Arqueológicas en Trinidad, Departamento del Beni*. Instituto Nacional de Arqueología, Publicación No. 22, La Paz.
- Calandra, Horacio Adolfo and Susana Alicia Salceda, 2004, Bolivian Amazonia: archaeology of the Llanos de Mojos. *Acta Amazonica* 34 (2): 155–163.
- Denevan, William M., 1966, *The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia*. Ibero-Americana, No. 48. University of California Press, Berkeley.
- , 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, Oxford.
- Dougherty, Bernardo and Horacio Calandra, 1981–82, Excavaciones arqueológicas en la Loma Alta de Casarabe, Llanos de Moxos, Departamento del Beni, Bolivia. *Relaciones de la Sociedad Argentina de Antropología* 14 (2): 9–48. Buenos Aires.
- Erickson, Clark L., 1980, Sistemas agrícolas prehispánicos en los Llanos de Mojos. *América Indígena* 40 (4): 731–755.
- , 1995, Archaeological perspectives on ancient landscapes of the Llanos de Mojos in the Bolivian Amazon. In *Archaeology in the American Tropics: Current Analytical Methods and Applications*, edited by Peter Stahl, pp. 66–95. Cambridge University Press, Cambridge.
- , 2000, An artificial landscape-scale fishery in the Bolivian Amazon. *Nature* 408: 190–193.
- , 2006, The domesticated landscapes of the Bolivian Amazon. In *Time and Complexity in Historical Ecology*, edited by Clark L. Erickson and William Balée, pp. 243–301. Columbia University Press, New York.
- and William Balée, 2006, The historical ecology of a complex landscape in Bolivia. In *Time and Complexity in Historical Ecology*, edited by Clark L. Erickson and William Balée, pp. 199–241. Columbia University Press, New York.
- and John H. Walker, ms. *The Archaeology of Landscapes in the Bolivian Amazon*. Manuscript in preparation.
- Faldín, Juan, 1984, La arqueología beniana y su panorama interpretivo. *Arqueología Boliviana* 1: 83–90.
- Glaser, Bruno and William I. Woods (eds.), 2004, *Amazonian Dark Earths: Explorations in Space and Time*. Springer, Verlag, Berlin.
- Gordon, Raymond G., Jr. (ed.), 2005, *Ethnologue: Languages of the World, Fifteenth Edition*. Summer Institute of Linguistics International, Dallas.

- Hanagarth, Werner, 1993, *Acerca de la geoecología de las sabanas del Beni en el noroeste de Bolivia*. Instituto de Ecología, La Paz.
- Harris, David R., 1980, *Human Ecology in Savanna Environments*. Academic Press, New York.
- Heckenberger, Michael J., 2005, *The Ecology of Power: Culture, Place and Personhood in the Southern Amazon, AD 1000–2000*. Routledge, New York.
- , James B. Petersen, and Eduardo G. Neves, 1999, Village size and permanence in Amazonia: two archaeological examples from Brazil. *Latin American Antiquity* 10 (4): 353–376.
- Hornborg, Alf, 2005, Ethnogenesis, regional integration, and ecology. *Current Anthropology* 46: 589–620.
- Howard, George D., 1948, *Prehistoric Ceramic Styles of Lowland South America, Their Distribution and History*. Yale University Publications in Anthropology, No. 37. New Haven.
- Jarvis, Andy, Luigi Guarino, David Williams, Karen Williams, Israel Vargas, and Glenn Hyman, 2002, Spatial analysis of wild peanut distributions and their implications for plant genetic resources conservation. *Plant Genetics Resources Newsletter* 131: 28–34.
- Kolata, Alan L., 1993, *The Tiwanaku. Portrait of an Andean Civilization*. Blackwell, Cambridge, MA.
- Langstroth, Robert, 1996, Forest Islands in an Amazonian Savanna of Northeastern-Bolivia. Ph.D. dissertation. Department of Geography, University of Wisconsin, Madison.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, London.
- Lehmann, Johannes, Dirse Kern, Bruno Glaser and William I. Woods, 2003, *Amazonian Dark Earths*. Kluwer Academic Publishers, Dordrecht.
- Meggers, Betty J., 1971, *Amazonia: Man and Culture in a Counterfeit Paradise*. Aldine, Chicago.
- , 2004, Response to paradigms in paradise: revisiting standard Amazonian prehistory. *Review of Archaeology* 25: 31–39.
- Métraux, Alfred, 1942, The native tribes of eastern Bolivia and western Matto Grosso. *Bulletin of the Bureau of American Ethnology*, No. 134. Washington, D.C.
- Nordenskiöld, Erland, 1910, Archäologische Forschungen im Bolivianischen Flachlande. *Zeitschrift für Ethnologie* 42: 806–822. Berlin.
- , 1913, Urnengraber und Mounds im Bolivianischen Flachlande. *Baessler Archiv* 3: 205–255. Berlin.
- , 1924, *The Ethnography of South America as seen from Mojos in Bolivia*. Comparative Ethnological Studies, No. 3. Goteborg.
- Olsen, Kenneth M. and Barbara A. Schaal, 2001, Microsatellite variation in cassava (*Manihot esculenta*, *Euphorbiaceae*) and its wild relatives: further evidence for a southern Amazonian origin of domestication. *American Journal of Botany* 88 (1): 131–142.
- Prümers, Heiko, 2004, Hügel umgeben von ‘Schönen Monstern’: Ausgrabungen in de Loma Mendoza (Bolivien). *Expeditionen in Vergessene Welten*, pp. 47–78. AVA-Forschungen Band 10. KAVA, Bonn.
- Ryden, Stig, 1941, *A Study of the Siriono Indians*. Elanders Boktryckeri Aktiebolag, Göteborg.
- Siiriäinen, Ari, and Antti Korpisaari, 2002, *Reports of the Finnish-Bolivian Archaeological Project in the Bolivian Amazon*. Department of Archaeology, University of Helsinki.
- and Antti Korpisaari, 2003, *Reports of the Finnish-Bolivian Archaeological Project in the Bolivian Amazon, II*. Department of Archaeology, University of Helsinki.
- Stahl, Peter W., 2002, Paradigms in paradise: revising standard Amazonian prehistory. *The Review of Archaeology* 23 (2): 39–49.
- Walker, John H., 2001, Work parties and raised field groups in the Bolivian Amazon. *Expedition* 43 (3): 9–18.
- , 2004, *Agricultural Change in the Bolivian Amazon/Cambio Agrícola en la Amazonía Boliviana*. University of Pittsburgh Latin American Archaeology Publications. Pittsburgh.

Amazonian Mosaics: Identity, Interaction, and Integration in the Tropical Forest

MICHAEL J. HECKENBERGER

INTRODUCTION

Identity is one of anthropology's oldest and favorite topics of inquiry. Interests have bounced between polemic ideas of primordial conditions, biology, descent, and natural communities to those of situation and contingency, alliance, and imagined communities. Identity in cultural anthropology is most commonly viewed as a sense of self or self-awareness – of personhood or subjectivity – that involves reflexive understandings of sameness and difference with “others” (Jenkins 1996). This paper discusses questions of identity and, particularly, historical and archaeological identities in Amazonia. It takes as its point of departure the idea that questions of identity, like those of equally popular agency or practice, are scalar. Further, in place of traditional views of cultural and ecological uniformity, recent research on all fronts, aided by the immense power of computers and remotely sensed imagery, suggests that variability and dynamic change are no less pronounced in Amazonia than any other equally proportioned place on earth (and see Chapters 11, 12, 20 and 50 in this volume).

Archaeologists also have grappled protractedly with questions of identity (see, e.g., Jones 1997), insofar as they attempt to reveal how groups of artifacts or other material things reflect the identities (ethnicity, gender, and role) of the people who made or interacted with them and how these identities were deployed in social interactions (by agents). Recently, archaeologists have turned to questions of the body and personhood as strategic loci of social agency in the archaeological record. They approach these questions quite differently than cultural anthropologists, sociologists, and linguists who take the present as the point of departure. Archaeologists see the human body not only as a privileged site

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

of cultural process, but instead as an inflection point between the microscopic worlds of specific events, individual cultural acts, and particulate phenomenon (bone chemistries, genetics, fish bones, stone chips, charcoal, and the like), with the mesoscopic world of gender, status and role, and household and community, which, in turn, articulate with macroscopic worlds of cultural identity within regional systems. While students of the present may concentrate on one or another level of analysis, for the archaeologist personhood must be understood from a multi-scalar and iterative perspective, linking local to regional and short-term to long-term, and boundaries change according to perspective.

Approaching Amazonian archaeological identities requires that we accept a certain collective identity that extends well beyond the individual person or community and also extends well beyond the present. It assumes that there is something fundamentally similar among groups living in this region, as opposed to the Andes or temperate Europe, and to sub-groupings (archaeological “phases,” “traditions,” “series,” “cultures,” and the like). But, what are these large-scale social identities? How do we relate them to actual human lives, sentiments, or feelings of selfness and otherness, and social interaction? How and why do they change?

In Amazonia, many of these questions of identity are premature, as the basic rudiments of space and time systematics are still being worked out, often for the first time, and, in fact, most of the area remains archaeological *terra incognita*. Nevertheless, strategic comparisons between archaeological, linguistic, and ethnographic distributions reveal broad ethno-linguistic and smaller-scale socio-cultural groups (archaeological “cultures”). Importantly, archaeology and early ethnohistory are means to understand Amazonian identities over the long-term, which often reveal an historical distortion and systematic bias in views that fail to contextualize the societies present in the twentieth century within much longer histories.

Therefore, one of the first steps in reconstructing past identities is to deconstruct present ones, which means questioning certain basic assumptions. As Strathern (1999: 235) notes: “A society, like a culture, is [...] so to speak [...] already written and forever remaining to be so,” and interpretation is always done in “a world already occupied by ‘societies.’” The history of Amazonian identities has yet to be written. The societies written into or onto the Amazon are generally those from the twentieth century: small, autonomous, dispersed and having little impact on the environment. In cruder characterizations—for instance, those of many environmentalists—one almost gets the impression that native peoples are more like wildlife than civilization. They are not refugees from colonial and post-colonial expansions, but *naturvölkern* as Karl von den Steinen, Amazonia’s first anthropologist, called them. To avoid the “tyranny” of the ethnographic record, it must be recognized that much cultural variation and a staggering number of lives and whole cultural groups were lost in the centuries following 1492.

Regional specialists in long-term indigenous histories in Amazonia, which extend beyond one or two centuries, tend to agree that societies much larger, more productive (in absolute terms), and very different in certain respects than living Amazonian peoples characterize the past. One area in particular has yet to be problematized in regional ethnology: how do large, regional polities known to have existed in various parts of Amazonia differ or not from contemporary Amazonian peoples in terms of, for instance, social identities.

Here I depart somewhat from the “heartland” of identity studies (the individual person, their “selves” and “others”) and focus on group identity over the long-term—group habitus—and macroscopic ethno-linguistic groupings: big bodies and meta-persons. Identity can be broken down into two questions: 1) How are identities constructed (or “represented”)

by outsiders or, in other words, how have societies and cultures—the peoples of Amazonia—been written, and how has this changed through time? and 2) What are the identities themselves, and how have these changed? Although often treated as such within modernist anthropology, the two are obviously not autonomous, just as the two views of identity (as primordial condition and tradition or as situational response and agency) are as often as not referring not to a general force but a point of view or factor of historical resolution. Diverse elements of primordialism and contingency interact in sociohistorical trajectories. The problem of identity is multi-scalar and dynamic, and persons are both hybrids, with many identities, and “stand-up citizens”, at the same time.

What interests us here—the stepping-stones in this seeming morass of identity perspectives—are macro-identities: archaeological cultures and regional traditions. The first consideration is macro-historical identities (interregional or continental in scale and “agency” which correspond to large archaeological traditions—e.g., Amazonian Barrancoid, Amazonian Polychrome traditions), ethno-linguistic groupings (e.g., Arawak or Tupi-guarani families), culture areas, and regional or world-systems. Secondly, I look at the level of archaeological cultures, specifically those that correspond to two areas of complex societies in Amazonia (the circum-Caribbean and eastern Brazil are others, but not described here; see Chapters 13, 16, 17, 18 and 33 in this volume): the Amazon floodplains and the southern Amazonian uplands. Finally, I take the Upper Xingu as a specific case of fractal personhood and complex society.

BIG BODIES: CULTURE AREA, LANGUAGE GROUP, AND WORLD SYSTEM

Archaeologists working in South America are familiar with Steward’s ambitious division of the continent into four parts in the *Handbook of South American Indians*: Marginal Tribes, Tropical Forest Tribes, Circum-Caribbean Tribes, and Andean civilization (Figure 47.1a; see Chapter 1 in this volume). Later he worked this into: Andean civilization, theocratic and militaristic chiefdoms (circum-Caribbean-like; largely wedged up against the Andes), tropical forest tribes, and marginals. Steward’s quadripartite division was immediately criticized (Figure 47.1b; see Murdock 1951; Steward’s characterization more or less recapitulates Wissler’s [1917] “Amazon culture area” and Cooper’s [1942] “Silval culture”), but the idea of a generalized tropical forest culture (hereafter TFC) has dominated, in spite of evidence for significant diversity. By systematically comparing nine characteristics, Murdock (1951) described 24 areas, with over half in Amazonia (see also Galvão 1967, for a similarly complex rendering of culture areas in Brazil in the twentieth century).

The first attempts to characterize Amazonia culturally were linguistic, for instance Giliĵ (1780–84), Martius (1867 [1838]), and Steinen (1886), which sought to divide South American languages in phylogenetic terms and locate origin areas for the major groups. The most updated general overview is Dixon and Aihkenvald’s *Handbook of Amazonian Languages* (1999), but descriptive and historical linguistics are still quite preliminary in Amazonia (Figure 47.2). Several general patterns emerge: (1) most languages are isolates; (2) small language families, largely restricted geographically, have expanded in upland areas; and (3) two large linguistic diaspora—similar to tropical diaspora in the Pacific (Oceanic Austronesian) and Africa (Niger-Congo)—are spread across the entire region (from the Caribbean in the north to the La Plata in the south and the eastern Andean foothills to mouth of the Amazon): Arawakan and Tupi-Guarani (T-G) families (see Chapter 33 in this volume).



Figure 47.1. a) Steward's Cultural Areas (1945).

The early German historicists were the first to draw attention to the Arawak and T-G families as diaspora (although not their word for it) (see Schmidt 1917; Steinen 1886), which has been further developed by several archaeologists, most notably Lathrap (1970). With respect to the Arawak in particular, Lathrap recapitulated Schmidt's contention that "developed" tropical forest agriculture and navigation propelled Arawak peoples across the



Figure 47.1. (Continued) b) Murdock's Culture Areas (1951).

lowlands. He was a proponent, however, of a generalized tropical forest culture, which was then enhanced or inhibited in its development by ecological factors, following the expectations of cultural ecology (a view shared by the other major players: Robert Carneiro, William Denevan, Betty Meggers, and Anna Roosevelt). I explicitly adopted aspects of Schmidt's formulation, but focusing on settlement pattern and landscape, I explored questions of

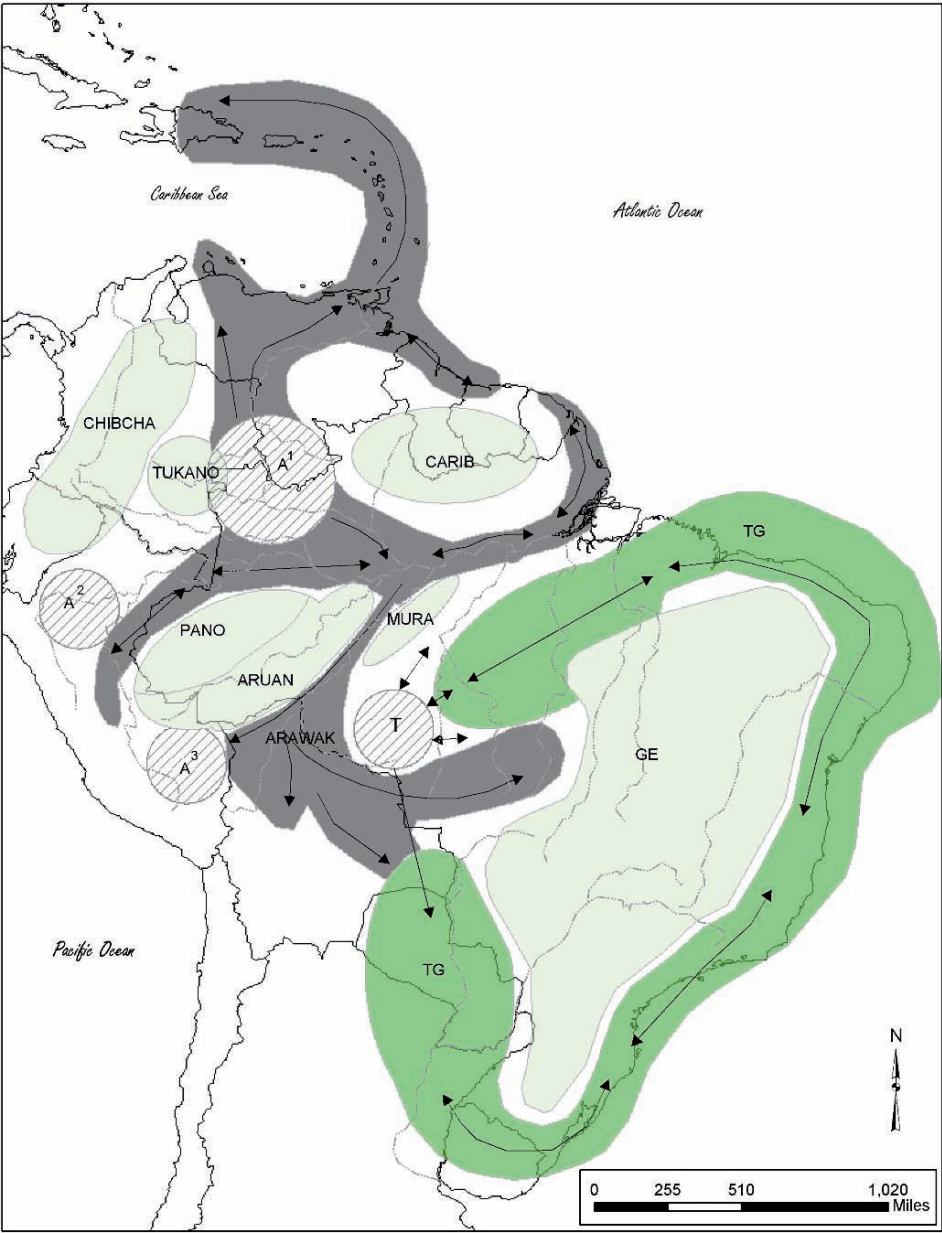


Figure 47.2. Schematic linguistic map of South American language families and two primary linguistic diaspora: Arawak (A) and TupiGuarani (TG), showing suggested origin areas (hatched).

social life, namely hierarchy, regionality, and settled life in plaza villages, the anthropogenic landscape, and the hybridizing nature of the diaspora as the foci (Heckenberger 1996, 2001, 2002). One thing is critical: all commentators who have looked at the family from a comparative perspective agree that the Arawak diaspora refers to something real (as noted at a recent conference on Arawakan peoples, see Hill and Santos-Granero 2002).

If the Arawak diaspora was characterized by hierarchy, regional integration, and settled life, even during its “formative” period (when it first dispersed, 500 BC to AD 500), the T-G were, as often as not, an alter-ego to this. Viveiros de Castro (1984, 1992) has outlined basic fundamental issues of a T-G historical identity: other-wordly, mobile, predatory, including the fairly large, heterarchical T-G polities of coastal Brazil, the Paraguai River, and the southern Amazon (e.g., the Pacajas of the lower Tocantins and Pará rivers). Viveiros de Castro (1992: 5) compares T-G (and Carib) to Gê, pointing to the sociological locus of cultural energies in these dialectical societies, as opposed to the cosmo-vision of the Amazonians (see also Descola 2001). Not surprisingly, these macro-cultural traditions have material and spatial features that are highly visible in the archaeological record, notably ceramic artifacts and settlement patterns.

Following much debate (summarized in Noelli 1998 and see Chapter 33 in this volume), it seems almost certain that Rondônia, more or less, is the center of dispersal for Tupian languages, and the best evidence to date suggests that T-G separated from somewhere close by to the east or south, and more likely the former (Urban 1997; Viveiros de Castro 1997). T-G languages are mainly distributed in four places: (1) southeastern Amazonia (Xingu-Tocantins); (2) southern Amazonia (Tapajos and Madeira); (2) the Paraguai River (Guarani); and coastal Brazil (coastal Tupi). Migrations are well documented historically. In the southern Amazon, T-G languages are interspersed with Mundurucu and Juruna, among other Tupian families for a near total domination by macro-Tupi languages, except—it is important to mention—along the southern peripheries, which are dominated by Arawakan and related groups (in the west) and macro-Gê (here one might note an interesting correlation between macro-Gê, but not non-Gê family groups, like Karaja, Bororo, Umosina, and Rikbatsa).

The Tupiguarani archaeological tradition, although distinguished from T-G languages by the missing hyphen, is largely co-extensive with the T-G language family, including its dominant presence in much of the southern Amazon, coastal Brazil, and in the Paraguai River, with occasional appearances in central Brazil and eastern Bolivia. This tradition, most clearly hallmarked by its thin line bi-chrome painting (red on white slip), body corrugation, and thin-walled vessel forms, is found in various contexts and relates to the T-G diaspora, ca. 2500 to 1500 BP.

In most cases, hybrid archaeological complexes (if not pluri-ethnic social formations) resulted from cultural interactions between local and immigrant groups. The most notable example of this is the Amazonian Polychrome (see Chapter 20), which takes elements of Barrancoid, Tupiguarani, and other (Konduri) complexes and reconstitutes them in the political economy of the Amazonian várzea, the most obvious example of an integrated supra-regional organization, or small “world system” in the lowlands due to its focus on durable prestige goods, especially ceramics. However, during the early diaspora, the time of rapid and extensive population movements, there were clear correlations of language groups and ceramic styles, most notably tied to these two large diaspora (Arawak, characterized by “Barrancoid” ceramics and T-G characterized by Tupiguarani ceramics). Lathrap (1970) recognized this basic relationship, but viewed these largely contemporaneous sloping traditions, which both extend from over 2000 BP to the present in recognizable form, as temporal strata: Barrancoid was early, ca. 200 BC (based on his work on Hupa-ya materials in the Ucayali, and Rouse and Cruxent’s (1961) work at the type sites in the middle-lower Orinoco) (see Chapter 23 in this volume), while T-G was late (Caimito in the Ucayali).

One thing that recent work on large-scale ethno-linguistic entities reiterates is the fundamental difference between riverine and coastal as opposed to upland settings, ecologically, socially, and in terms of community formation, and ethnographic groupings

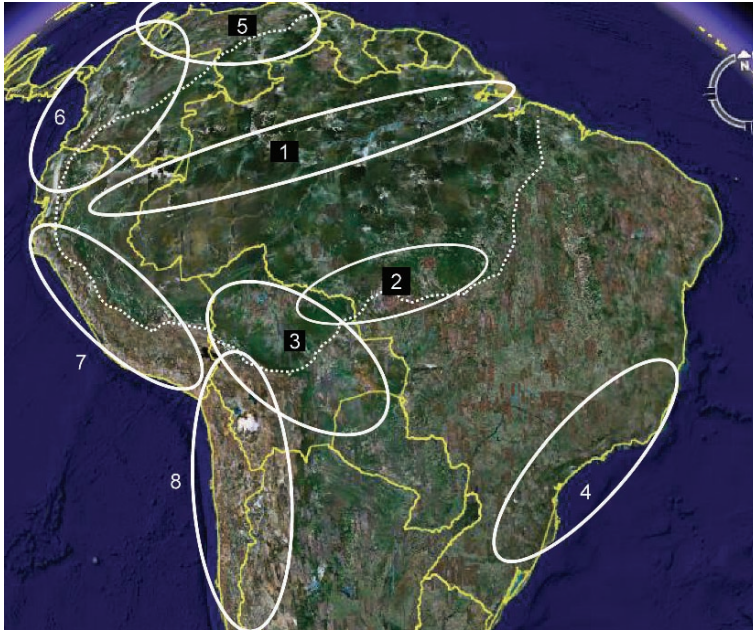


Figure 47.3. Formative supra-regional systems in South America, including (1) várzea; (2) southern Amazon; (3) Moxos/Chaco; (4) eastern Brazil; (5) Orinoco; (6) northern Andes; (7) Central Andes; and (8) southern Andes.

favor the uplands (Heckenberger 2006) (Figure 47.3). Two final implications are important to mention, before describing these better known societies in the Brazilian Amazon: one is that “refugia” may relate to anthropogenic processes and second, dynamic language change may be quite different in settled areas than low density areas, and relations between languages, which for instance posit a steady rate of change or dispersal, may overlook important punctuated change, such as cultural contact, or trade-languages (e.g., Moxos [Arawak], Kokama [T-G hybrid], or Nheengatu [“lingua franca,” T-G]).

HISTORICAL MORPHOLOGY: PERIODS

At this point a brief note on periodization (macro-temporal identities) is merited. Many periodizations have been suggested for Amazonia based on different field sites and viewpoints. These are usually based on ceramic remains, hence Zoned-Hachure, Incised Rim, Polychrome, and Incised-Punctate (Meggers and Evans 1961). Following Lathrap, Incised-rim becomes “modeled-incised” or “Amazonian Barrancoid” and Incised-Punctate is related to the specific ceramic traditions of the lower-middle Amazon, namely Konduri (linked to Carib groups in the Guiana plateau) and the hybrid tradition generically called Santarém, after the city of that name. As Roosevelt (1997) notes, this logic is inappropriate in the context of “sloping horizons,” and she prefers a more general cultural historical view: Paleo-Indian tropical foragers, shell-midden peoples, TFC horticulturalists, and complex riverine societies in late prehistoric times.

My own preferred periodization is: (1) archaic (pre-3000 BP); (2) early diaspora (begins 3000 to 2500 BP); (3) regional development and diversification (begins 2000 to

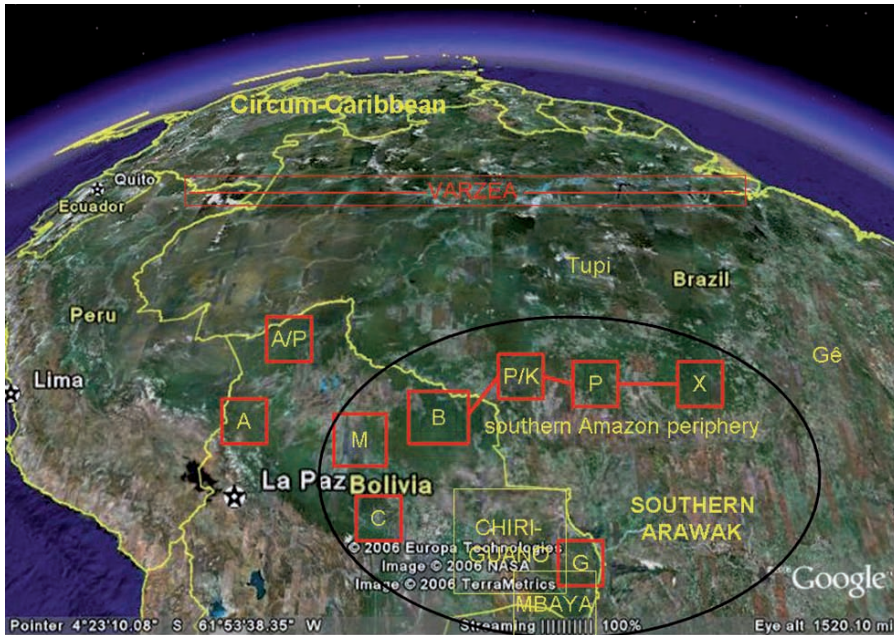


Figure 47.4. Major concentrations of Arawak and Arawak-related population aggregates in southern Amazon in 1500-1750, including: Xingu (X); Pareci (P); Pareci/Kobashi (including Saluma and Enaue naue; P/K); Baure (B); Mojos (M); Apurina/Piro (A/P); Apurina (A); Chane (C); and Guana (including Terena; G). (Note: várzea area along Amazon main branch).

1500 BP); (4) late prehistoric “classic” (begins ca. 1500 to 1000 BP); and (5) European world-system (begins AD 1500–1600). Rather than tightly defined periods per se, these periods are a recognition of novel changes in the social worlds of the people: in archaic times, there were no major linguistic diaspora; prior to diaspora, regional societies of different language groups were uncommon; prior to the classic period, supra-regional integration into native world systems was little developed, although regional systems were ubiquitous; and 1492, like elsewhere, marks a unique historical benchmark. During the later periods (3, 4 and 5 above), cultural hybridity was typical of virtually all Amazonian people, whereas before ca. 2000 to 1500 BP, trade and exchange did not commonly (or at least necessarily) involve ethnogenesis. Once again, as the story emerges, we see that dynamic change, hybridity, and regional integration were the hallmarks of prehistory, at least the latter part (beginning 1500 to 500 BP).

The remainder of the discussion focuses on the two major Amazonian macro-cultural traditions, the Amazonian Polychrome Tradition (APT) of the várzea and the southern Amazonian periphery (Figure 47.4).

THE VÁRZEA

The Amazon and its main tributaries are typically divided into “white-,” “black-,” and “clear-water” rivers, based upon basic characteristics of water quality and alluvial deposition. While extremely oversimplified, this division does emphasize the difference

between the Amazon floodplain area (*várzea* in Portuguese, that includes the Solimões and the lower courses of the Madeira, Negro, Tapajós, and Xingu, among others, rivers) and more upland landscapes in the middle and upper courses of primary tributaries and interfluvial areas.

By ca. AD 1000 or before, the macro-region, commonly glossed as the *várzea*, was an integrated system of interregional interaction, a geo-political entity that can be mapped to some degree, as noted above, by the distribution of distinctive prestige exchange goods, notably fine polychrome (elite) ceramics. The earliest chronicles of the main branch of the Amazon make it quite clear that sometimes large, densely settled populations lived in many parts of this area. On 25 June 1542 Carvajal described an area below today's Manaus this way:

We went among some islands which we thought uninhabited, but, after we got to be in among them, so numerous were the settlements which came into sight ... that we grieved; and, when they saw us, there came out to meet us on the river over two hundred pirogues [canoes], that each one carries twenty or thirty Indians and some forty ...; they were quite colorfully decorated with various emblems, and they had with them many trumpets and drums. ... They surrounded our two brigantines and attacked ... [but] our arquebusiers and crossbowmen made it so uncomfortable for them that, many as they were, they were glad to stand off, and on land a marvelous thing to see were the squadron formations that were in the villages, all playing on instruments and dancing about, manifesting great joy upon seeing that we were passing beyond their villages. (quoted in Medina 1988: 218)

While clearly just one small glimpse into the great diversity of the Amazon River people, this short passage attests not only to the vigorous and populous societies that thronged the banks of the river, it also reminds us how foreign this complexity was to European eyes.

In Amazonia complexity was constituted in a diffuse manner: heterarchy, for lack of a better term. Even in the larger “headed” polities, there was a degree of “headlessness,” heterarchy, at play, as well. But everything available from the ethnography, ethnohistory and archaeology of settled Amazonian peoples suggests that social hierarchy – of the elite (it matters little what we call them: see Sahlins 1985, citing Heusch) to commoner kind – was typical of these societies. The comparative problem seems to lie with centralization: there is little evidence that Amazonian polities ever maintained the type of central-place monopolies of power that characterize states in general and Andean states in particular. But what of the other more modest polities that dominated the major Andean past? Were there Amazonian societies that could be compared in demographic, economic, or political terms to complex societies elsewhere in the Andes or elsewhere in the world?

The domains of polities at least loosely integrated under paramount chiefs, notably Machiparo (Omagua) and Aparia (Yurimagua/Solimoes) on the middle-upper Amazon, potentially extended over hundreds of miles. Roads linked these communities with others in the interior and “garrisons” and buffer-zones separated them along the river. Specialization, including village specialization, and extensive trade in gold, shell, stone, salt, feathers and hides is suggested across the floodplains. Ethnohistoric evidence leaves massive gaps, however, that can only be resolved through archaeological research. Recent investigations in three areas, in particular, reveal aspects of these diverse polities, including Marajó Island in the Amazon estuary (see Chapter 19 in this volume), the lower Amazon area near Santarém, and the central Amazon near Manaus (see Chapter 20 in this volume). I discuss the three areas now.

Marajó Island

Marajó Island (Chapter 19 in this volume) was the first area recognized as a center of pre-Columbian complex societies, by archaeologists of the early to mid-1900s (see Meggers and Evans, 1957). Initially, theories espoused migration from the Andes and devolution to TFC. Later researchers favored *in situ* development and expansion of a generalized riverine tropical forest pattern to explain Marajó and other densely populated areas along the Amazon River (Carneiro 1970; Lathrap 1970). By the 1980s, it was widely believed that chiefdoms, producing pottery belonging to the APT, depended on fairly intensive exploitation of aquatic resources and diversified cultivation (Carneiro 1986; Lathrap et al. 1985).

Roosevelt's research from the mid 1980s to 1990s on Marajoara, was particularly important in documenting for the first time community organization and subsistence of these mound-building polities. She argued for the intensification of agriculture of flood-plain crops (e.g., maize or some local seed crop) and exploitation of diverse wetland resources and wild plants (Roosevelt 1991). Roosevelt is equivocal on whether Marajoara represents an urban polity (1991) or something else (1999), but as elsewhere in the region that term cannot be applied unproblematically. The Marajoara polity must be judged on its own terms, and it remained unclear until recently how it was organized regionally or within discrete sub-regions (i.e., was it one big polity or many closely related small polities).

Recent field research by Schaan (2004 and Chapter 19 in this volume) sheds light on these questions. A detailed regional survey and excavation program at Camutins (the largest known Marajoara mound group) reveals a small polity, including 37 small- medium-, and large-sized mounds centered on the ceremonial group of the Camutins and Belém mounds. Camutins stands 12m high and is over 100 × 250 m (2.5 ha) in upper extent. And the difference between this ritual/elite mound and the small to medium-sized domestic mounds is pronounced in size and ritual function (as an urn cemetery). She argues that the big mounds went up quickly, between (ca. 1400–1600 BP) and that mound building was in decline before European contact, by ca. 700 BP.

The internal organization of these groups was hierarchical, with major ritual and public political activities likely concentrated on the big mounds. Her ceramic analysis has revealed sub-groupings within Marajoara that apparently relate to the specific designs of discrete socio-political groups. Discovery of exotic materials in Marajoara mounds documents long-distance trade with other groups to the south and west.

Notably, Schaan argues that mounds were constructed concomitant with, or even as a part of wetland management, specifically the creation of barrow-pits in river sources that constituted ponds to manage aquatic resources. The larger mounds had substantial non-domestic functions, stood far above highest seasonal water levels, and would have created singularly large ponds for year-round fish and other flora and fauna. Small- to medium-size occupation mounds may well have been designed to create flat high ground for residential activities, but would have also resulted in wetland modifications, which probably included fish and other aquatic animals, as well as management of river palms.

Lower Amazon Near Santarém

Santarém is also related to APT, but is distinctive, seeming to be the hybrid of APT and Konduri (coming from the Guianas). The archaeological culture is centered at the confluence of the Amazon and the Tapajós rivers. It is known primarily by its ornate ceramics (see Gomes 2002), but is considered ancestral to the ethnohistoric Tapajós polity, for which

some early documentation exists (Nimuendajú 1952). Roosevelt's fieldwork in and around the city of Santarém (1999) leads her to believe that the polity was an even more populous and complex chiefdom than Marajó, and characterized by intensive floodplain and upland agriculture as well as significant use of forest and wetland ecozones. Whereas Marajoara peoples may have been more "heterarchical," i.e., with less rigid social stratification and a more diffuse political economy, Santarém was the capital of a highly stratified and quite large tributary polity.

At Santarém, Roosevelt found "a complex series of deposits including low mounds, pits, caches of fine pottery vessels and statues, and large black-earth middens [and] ... floors of longhouses with bell-shaped pits," leading her to conclude that the site is "of urban scale and complexity" (1999: 337). Based on her largely unpublished fieldwork, she estimates that at its peak, in terminal pre-Columbian times, the site extended over an area nearly 16 km², although as is typical in other parts of the Amazon, the distribution of occupation areas was probably spread out. Nonetheless, if correct, her estimate of this late prehistoric capital town rivals the size of Cahokia, the largest site in North America, or many of the stone and adobe temple centers of the Central Andes and Mesoamerica. It remains to be determined how sites varied across the area of the polity, and what the variation was between and within centers and satellites, but archaeology and ethnohistory demonstrate that it was a large and very powerful nation in late prehistoric times.

Recent research on archaeological dark earth (ADE) soils from a variety of sites in the lower Tapajós River appears to have identified the agronomic signature of these large populations (Denevan 2001; Woods 2004). ADE research suggests that the area was densely occupied and that agricultural populations had a complex and sophisticated system of ADE creation and management, including both occupational soils (*terra preta*) and non-ceramic bearing agricultural soils (*terra mulata*) (Woods and McCann 1999). Altered (anthropogenic) soils cover an area well over 1000 ha in this lower Tapajós region, and include a wide range of variation in size and content (Kern 2003; Denevan 2001). This resonates with ideas presented in Denevan's (1992, 1996) bluff model of intensive agriculture, as well as Posey's (2004) general discussion of eco-tonal management, including anthropogenic "forest islands" (i.e., archaeological sites), as also suggested by Erickson and Balée (2006) for eastern Bolivia.

Central Amazon

The Central Amazon region near Manaus, about 1000 km up River from Santarém, is defined by the confluence of the Amazon (Solimões) and Negro Rivers in Brazil. It has a particularly well-known archaeological sequence leading up to late prehistoric complex societies similar in scale to those downriver. A decade of archaeological research in the Central Amazon has revealed more than one hundred archaeological sites (e.g., see summary in Lima et al. 2006; Neves 2005; Neves and Petersen 2006; Petersen et al. 2005).

In late prehistoric times, fairly large-scale regional populations lived in dispersed small settlements (<10 ha) tied to larger residential and ceremonial centers. These major centers, such as the Açutuba site, with a large (30–50 ha) plaza center located about 50 km up the Negro from the confluence, were distinct from other settlements both qualitatively and quantitatively. However, they may have held a fairly small resident (year-round) population. Nonetheless, at least at certain times the center was used intensively, as suggested by the black soils, low occupation mounds, and massive quantities of broken ceramics found in core areas of the settlement, around the central plaza (Heckenberger et al. 1999).

Ongoing research by Central Amazon projects also have made important strides in ADE research, including identifying differential and patchy distributions within and between sites, the diversity and scale of constructions, refuse activities, and surrounding transformations of agricultural landscapes, including terra mulata formation (largely a-ceramic ADE deposits surrounding Açutuba), defensive structures, and wetland modifications (Neves et al. 2003, 2004; Petersen et al. 2001). The infrastructural elaboration at sites like Açutuba, including mounds, ramps and ditches, sculpted-plazas, and agricultural areas attest to the necessarily great alteration of the tropical forest in this riverine setting (Heckenberger et al. 1999).

The Central Amazon projects provide solid archaeological evidence of fairly dense populations with some moderately large settlements with heavily built up core areas that include architectural earthworks, massive soil alteration in and around settlements, large agricultural areas and possible wetland management systems. Results suggest a great deal of local variation in the size and duration of settlements and of their impacts on the environment, as well as regional fluctuations in site locations and population densities. They support the idea of environmental complementarity between densely and sparsely settled stretches of the main rivers (“buffer-zones”) and between river and hinterland zones, which created a highly patchy landscape. The region, it appears, was extremely dynamic for millennia in terms of ethnic composition, integration, and change in both language and material culture (see Chapter 20 in this volume). Economic and social strategy emphasized the broad area employed in highly patchy and variable manners as people moved from place to place, or not, through time.

THE SOUTHERN PERIPHERY

Steward and Faron (1959) used the term “theocratic chiefdoms” for these complex societies that dominated the densely forested areas of the river basins. They were largely of the Arawakan language family and related peoples. Early ethnohistoric accounts (1600–1750) describe the Bauré peoples of the middle Guaporé, the Pareci peoples of the Juruena and Arinos Rivers (headwaters of the Tapajós River headwaters) and the Terena/Guana peoples (upper Paraguay River) all as large, densely settled populations, with complicated settlement and agricultural works, and regional socio-political organization.

Archaeological complexes associated with these groups, including sophisticated agricultural, settlement, and road earthworks, have long been known from the eastern lowlands of Bolivia (Denevan 2001; see Chapter 46 in this volume). Aerial photography in the mid-twentieth century made it more feasible to visualize the scale and configuration of agricultural earthworks, raised causeways, and other features. Erickson’s (e.g., 2000, 2001, 2006) recent archaeological work has revealed a complex system of earthworks, including causeways, fish weirs and ponds, and forest islands (ancient settlements), raised fields and diverse other archaeological landscape features. He notes that: “Rather than domesticate the species that they exploited, the people of Baure domesticated the landscape” (Erickson 2000: 193).

Slightly to the east, in the adjacent upper Tapajós River headwaters, Antonio Pires de Campos, an early frontiersman, made reference to the settlement pattern of the Arawak-speaking Pareci nation: “These people exist in such vast quantity, that it is not possible to count their settlements or villages, [and] many times in one day’s march one passes ten or twelve villages, and in each one there are from ten to thirty houses ... even their roads they make very straight and wide, and they keep them so clean that one will find not even a fallen leaf” (Pires de Campos, 1862 [1720]: 443–444, author’s translation).

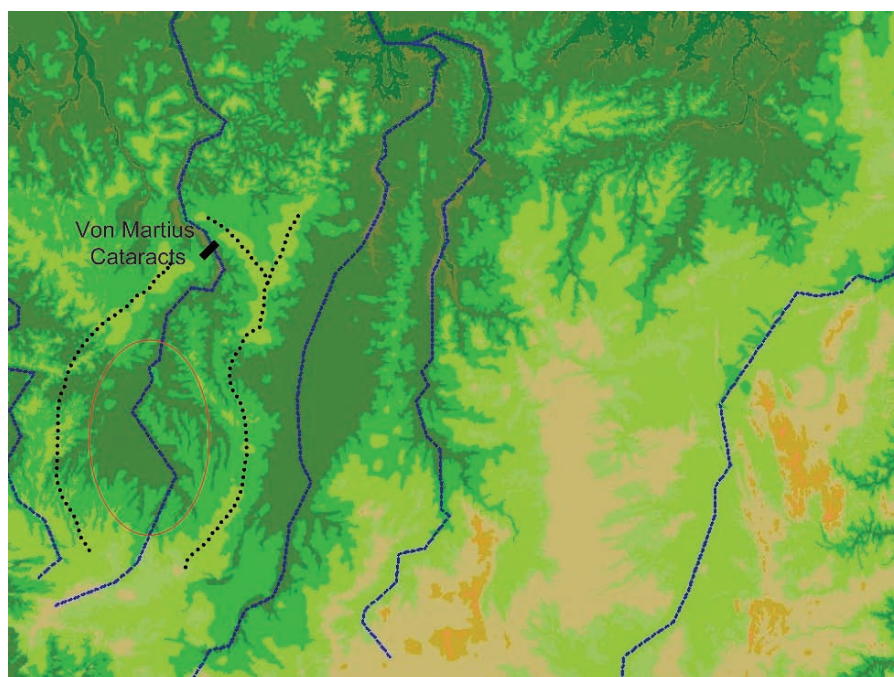


Figure 47.5. Map of southeastern Amazonia, showing Upper Xingu basin flanked by uplands to east and west. Note, as with other settled groups in the southern Amazonian periphery, Xinguano traditional territories correlate with the forested, low-lying basin.

In the adjacent Upper Xingu basin (Figure 47.5), occupied by the easternmost of the southern Arawakan groups, recent archaeological work shows a settlement pattern very similar but even more developed and elaborated than the one described by Pires de Campo. The southern Arawakan and related groups are a fascinating example of how related peoples expand into areas with specific ecological conditions (forested bottomlands) but diverge over time as they reorient themselves to distinctive social, ecological, and historical conditions (Heckenberger 2002). The Upper Xingu groups differ from their distant sociopolitical cousins, the Arawakan polities to the west, in the degree to which ancient lifeways are maintained by their living descendants. Demonstrable cultural continuity expressed in material culture and built environment links contemporary indigenous peoples and their precolumbian ancestors, including important aspects of economics, settlement patterns and technology (Franchetto and Heckenberger 2001).

The broad region, which extends from the Tocantins River headwaters in the east to the Guaporé River (the easternmost headwater of the Madeira River), is dominated by semi-deciduous forests transitional between the high forests of lowland Amazonia and the low and scrub forests of the highland central Brazilian plateau. The overall topography is characterized by pockets of flat, low-lying and forested areas, corresponding to the headwater basins of the major rivers that eroded out along the northern flanks of the Brazilian highlands (300–500 masl). These are populated by Arawakan-speaking peoples. The basins are interspersed by rolling topography and more open forests in highland interfluvies between the headwater streams, and populated by Tupian and Gê-speaking peoples.

The ecology is characterized by a wide diversity of forested areas and wetlands, lacking fertile floodplain or agricultural ADE (*terra mulata*) soils used by the Amazon River societies. Like other areas described above, many wetlands and forests were modified over generations of near continuous occupation, and one sees overtime well defined land-use “zones,” consisting of areas of continual management (roads, settlements, bridges), and areas of active but occasional management (gardens, fish weirs, orchards, and grass fields for thatch), and areas that were utilized but not actively managed (forest “preserves”). Earthen causeways are present where roads pass over maintained wetlands, and are an important component of the wetland management system.

Archaeological studies (1992–2005) have been concentrated in the traditional territory of the Kuikuro Amerindian community, whose three villages form part of the larger Xinguano society (composed of nine sub-groups, living in 14 villages, and almost 2500 people). The Kuikuro territory spreads over an area of some 1200–1500 km² (based on known archaeological distributions for late prehistory the regional society was spread over an area minimally ten times this size). Archaeological survey has identified more than 30 residential sites in the Kuikuro territory. Most or all of these were occupied and interconnected in late prehistoric times (AD 1250–1650) and were organized into two or three integrated and ranked clusters of between 8–12 villages (Figure 47.6).

The cultural sequence is composed of four distinctive periods: (1) early occupations by Arawak and, perhaps, Carib-speaking peoples, ca. AD 500 or before, until AD 1250; (2) a galactic period, from ca. AD 1250 to 1650 or soon thereafter, marked by the integrated clusters of small to large villages; (3) a historical period, dominated by adaptation to

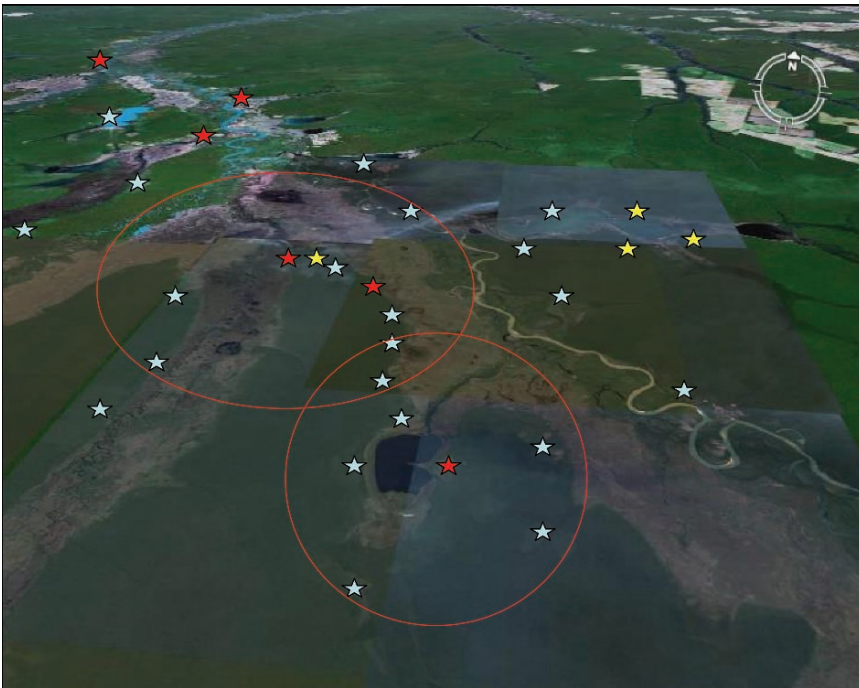


Figure 47.6. Distribution of late prehistoric sites in Kuikuro study area, Upper Xingu, showing two primary clusters identified: Ipatse (north) and Kuhikugu (south) (Note: stars represent late prehistoric sites).

the indirect and direct effects of Western expansion, from ca. AD 1650 to 1950; and (4) the modern period, from 1950 until present. The first known occupants were agriculturalists (proto-Xinguano tradition), who appear to be historically related to other Arawak-speaking groups to the west. After AD 1250 there was a major reconstitution of the overall regional settlement system, whereby settlements were reconstructed and formally linked into galactic patterns of nodes with roads across the area through the construction and/or elaboration of linear village earthworks (Figure 47.7).

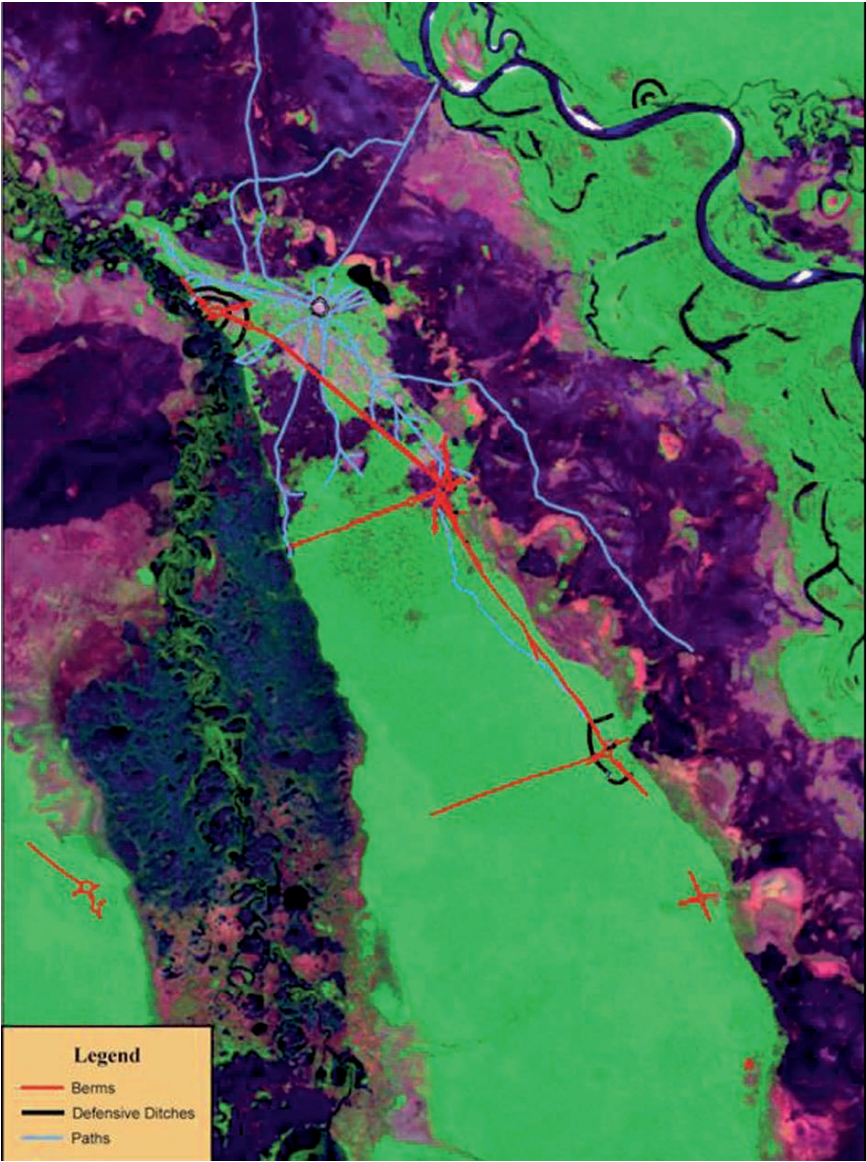


Figure 47.7. Major sites of Ipatse cluster, including ceremonial hub (X13), major residential sites (X6 and X18; ~40-50 ha), second-order residential sites (X17, X22; ~10-20 ha), and satellite plaza villages (X19, X20; <10 ha). (Note: contemporary village is shown in upper-center of image, denoted by small white ring/dot with light-colored radial paths leading from it).

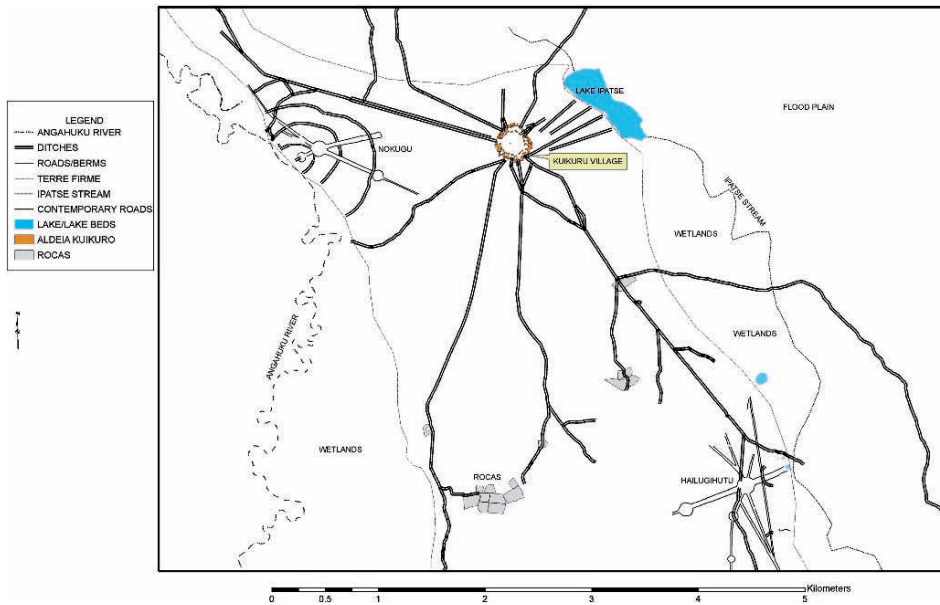


Figure 47.7. (Continued)

Regional ethnohistory shows diverse migrations and episodes of ethnogenesis, in response to Western frontier expansion over five centuries, which has helped fill the gap of declining population, but by 1950 the regional population was a mere 500, perhaps less than 5% of its precolumbian size (Agostinho 1972; Fausto et al. 2006; Franchetto 1992, 2001; Franchetto and Heckenberger 2001; Heckenberger 2005). Population collapse resulted in a process of landscape “fallowing,” as settlement after settlement was abandoned and merged into one, leaving entire regions vacant. It is an exemplary case of what a large, settled precolumbian polity becomes after five centuries of decline. However, a remarkable number of basic cultural patterns have been resilient through this time, such as the circular plaza village form and general landscape orientations.

Xinguano agricultural patterns also can be reconstructed over the long run, in part through analysis of functionally specific utilitarian ceramics, which also show continuity in forms used to cook manioc and fish. Indeed, traditional foods still constitute more than 99% of Xinguanos’ food, including primarily fish and manioc, supplemented by turtle, monkey and some bird meat, insects, pequi fruit, and several palm fruits (see Basso 1973; Carneiro 1957, 1983; Dole 1978).

No ADE soils are found on floodplains, but they still constitute an important part of the landscape. They occur as part of ancient occupation sites distributed in overlapping and sometimes mixed refuse middens (composts), domestic contexts and work areas, and public areas such as the plaza and its ritual house, and even in roads leading away from the ritual house (Heckenberger 1996). In precolumbian villages ADE soils cover areas of about 6 to 8 ha, and within larger residential sites, 20–50 ha. In other areas, trash middens and domestic areas show restricted soil darkening and alterations, as in contemporary villages. This distribution of ADE deposits, like vegetation and wetland habitats, is the historical outcome of Xinguano settled agricultural lifeways, including village permanence,

as well as sustained demographic decline during the past five centuries. Many technologies have been abandoned, such as subterranean manioc storage, seasonal water-storage ponds (wells, or reshaped channels existing since the late Pleistocene) and turtle pens, although fish weirs are still in wide use (see Clement 1999, 2006 for important discussion of crop diversity and post-1492 losses in Amazonia).

In precolumbian villages, landscapes were more densely packed and land-use was more intensive. Settlements and countryside features (fields, orchards, wetlands) were laid out and administrated according to more rigidly defined divisions and schedules. Where today there are three villages with some 500 people (one having 350 persons in 1993), there were over 20 settlements, in at least two clusters, with the largest first-order settlements reaching well over ten times the residential area of the modern Kuikuro settlements combined. These settlement hierarchies were both centric and multi-centric, and unquestionably integrated territories of about 400 km².

It is often hard to say what the exact scale of communities or regional populations was, but the configuration of villages is quite clear. Plaza villages, like today, were critical social nodes, integrating elaborate socio-political networks. Primary roads and bridges were oriented to plazas, or more accurately, were ordered by the same spatial principles, which also organized domestic and public space, creating a cartography and landscape that was highly partitioned but rigidly arranged according to the layout of settlements and roads.

These precolumbian plaza villages and galactic clusters can be easily identified across the region, which today has nine indigenous groups, many of whom migrated into the area over the past few hundred years (some have come in more recently, including the Bakairi, Trumai and Suyá), but 250 to 300 years seems to be the cut-off for “full” integration into the regional society (for which the litmus test is sponsoring chiefly mortuary feasts; Heckenberger 2001). In prehistoric times, polity rather than society may be the appropriate term, since it was not a confederation of peer-villages, but instead a confederation of peer-clusters, with communities that extended over an area some 200 × 100 km, or more (about 20,000 km², or a little smaller than Vermont or Belgium). In this area, there may have been up to 50 clusters, given 400 km² as a territory in the past, but this, like precise population estimates, is a preliminary estimate. My educated guess is that village clusters ranged from under 1,000 to over 2,500, and perhaps as many as 5,000; that there were at least 15–20 cluster groups in the territory of the Xinguano nation in 1492; and, that the overall populations must have therefore ranged into the tens of thousands, perhaps more.

CLOSING THOUGHTS

It is clear that “Amazonia” was a very dynamic socio-cultural landscape, or “mosaic” of fluctuating landscapes and societies characterized by great variability, hybridity, and opportunism. Archaeology reveals complicated indigenous histories, extending from the late Pleistocene to today, as well as remarkable change and variability in cultural patterns through time and from region to region. The inhabitants were articulated in regional systems that, by the time of European contact, included sociopolitical arrangements from massive polities to small mobile bands living between settled areas. Amazonians domesticated their landscapes no less than elsewhere in the Americas of 1492, but they did so in a distinctive, uniquely Amazonian way(s).

REFERENCES

- Agostinho da Silva, P., 1972, Informe sobre a situação territorial e demográfica no Alto Xingu. In *La Situacion del Indigena en America del Sur*, edited by G. Grunberg, pp. 355–379. Biblioteca Cientifica, Tierra Nueva, Uruguay.
- Aikhenvald, Alexandra Y., 1999, The Arawakan Languages. In *Handbook of Amazonian Languages*, edited by R. M. W. Dixon and A. Y. Aikhenvald, pp. 65–106. Cambridge University Press, Cambridge.
- Balée, William, 1989, The culture of Amazonian forests. In *Resource Management in Amazonia: Indigenous and Folk Strategies. Advances in Economic Botany* 7: 1–21.
- , 2006, The research program of historical ecology. *Annual Review of Anthropology* 35: 75–98.
- and Clark L. Erickson (eds.), 2006, *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*. Columbia University Press, New York.
- Basso, Ellen, 1973, *The Kalapalo Indians of Central Brazil*. Holt, Rhinehart, and Winston, New York.
- Carneiro, Robert L., 1957, Subsistence and Social Structure: An Ecological Study of the Kuikuru Indians. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- , 1970, Theory on the origin of the state. *Science* 169: 733–738.
- , 1983, The cultivation of manioc among the Kuikuru Indians of the Upper Xingu. In *Adaptive Responses in Native Amazonians*, edited by R. B. Hames and W. T. Vickers, pp. 65–111. Academic Press, New York.
- , 1986, The Ecological Basis of Amazonian Chiefdoms. Unpublished ms. on file at the American Museum of Natural History, New York.
- Clement, Charles R., 1999, 1492 and the loss of Amazonian crop diversity. I. The relation between domestication and human population decline. *Economic Botany* 53: 188–202.
- , 2006, Fruit trees and the transition to food production in Amazonia. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark L. Erickson, pp. 165–185. Columbia University Press, New York.
- , J. M. McCann, and N. J. H. Smith, 2003, Agrobiodiversity in Amazonia and its relationship with dark earths. In *Amazonian Dark Earths: Origins, Properties, and Management*, edited by Johannes Lehmann, Dirse Kern, Bruno Glaser, and William I. Woods, pp. 159–178. Kluwer Academic Publishers, Dordrecht.
- Cooper, John M., 1942, Areal and temporal aspects of aboriginal South American culture. *Primitive Man* 15: 1–38.
- Denevan, William, 1976, The aboriginal population of Amazonia. In *The Native Population of the Americas in 1492*, edited by William Denevan, pp. 205–234. University of Wisconsin Press, Madison.
- , 1992, Stone vs. metal axes: the ambiguity of shifting cultivation in prehistoric Amazonia. *Journal of the Steward Anthropological Society* 20 (1–2): 153–165.
- , 1996, A bluff model of riverine settlement in prehistoric Amazonia. *Annals of the Association of American Geographers* 82: 369–385.
- , 2001, *Cultivated Landscapes of Native Amazonia and the Andes*. Oxford University Press, Oxford.
- Descola, Philippe, 1996, *In the Society of Nature*. Cambridge University Press, Cambridge.
- Dole, Gertrude, 1978, The use of manioc among the Kuikuru: some interpretations. In *The Nature and Status of Ethnobotany*, edited by Richard I. Ford, pp. 217–247. Museum of Anthropology Monographs, University of Michigan, Ann Arbor.
- Erickson, Clark L., 2000, An artificial landscape-scale fishery in the Bolivian Amazon. *Nature* 408: 190–193.
- , 2006, Domesticated landscapes of the Bolivian Amazon. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark L. Erickson, pp. 235–278. Columbia University Press, New York.
- Fausto, Carlos, Bruna Franchetto, and Michael J. Heckenberger, 2006, Ritual language and historical reconstruction: toward a linguistic, ethnographic, and archaeological account for Upper Xingu society. In *A World of Many Voices*, edited by P. Harris and A. Dywer. (in press).
- and Michael J. Heckenberger (eds.), 2006, *Time and Memory in Indigenous Amazonia: Anthropological Perspectives*. University Press of Florida, Gainesville.
- Franchetto, Bruna, 2001, Linguas e história no Alto Xingu. In *Os Povos do Alto Xingu: Cultura e História*, edited by Bruna Franchetto and Michael J. Heckenberger, pp. 111–156. Editora UFRJ, Rio de Janeiro.
- , 1992, O aparecimento do Caraiá: para uma história Kuikuro e Alto Xinguana. In *História dos índios no Brasil*, edited by Maria Manuela Carneiro da Cunha, pp. 339–356. Companhia das Letras, São Paulo.

- _____ and Michael J. Heckenberger (eds.), 2001, *Os Povos do Alto Xingu: História e Cultura*. Editora UFRJ, Rio de Janeiro.
- Galvão, Eduardo, 1967, Indigenous culture areas of Brazil, 1900–1959. In *Indians of Brazil in the Twentieth Century*, edited by Janice Hopper. Institute for Cross-Cultural Research, Washington, D.C.
- Gilij, F. S., 1780–1784, *Saggio di Storia Americana*. 4 Vols. Biblioteca de la Academia Nacional de la Historia, Caracas.
- Glaser, Bruno and William I. Woods (eds.), 2004, *Amazonian Dark Earths: Explorations in Space and Time*. Springer, Verlag, Berlin.
- Gomes, D. M. C., 2002, *Cerâmica Arqueológica da Amazônia: Vasilhas da Coleção Tapajônica MAE-USP*. FAPESP/EDUSP/Imprensa Oficial de São Paulo, São Paulo.
- Heckenberger, Michael J., 2002, Rethinking the Arawakan diaspora: hierarchy, regionality and the Amazonian Formative. In *Comparative Arawakan Histories: Rethinking Language Family and Culture Area in Amazonia*, edited by Jonathan Hill and Fernando Santos Granero, pp. 99–122. University of Illinois Press, Urbana.
- _____, 2005, *The Ecology of Power: Culture, Place, and Personhood in the Southern Amazon, AD 1000–2000*. Routledge, New York.
- _____, 2006, History, ecology, and alterity: visualizing polity in ancient Amazonia. In *Time and Complexity in Historical Ecology: Studies from the Neotropical Lowlands*, edited by William Balée and Clark L. Erickson, pp. 311–340. Columbia University Press, New York.
- _____, A. Kuikuro, U. T. Kuikuro, J. C. Russell, M. Schmidt, C. Fausto, and B. Franchetto, 2003, Amazonia 1492: pristine forest or cultural parkland. *Science* 301: 1710–1714.
- _____, James B. Petersen, and Eduardo G. Neves, 1999, Village size and permanence in Amazonia: two archaeological case examples from Brazil. *Latin American Antiquity* 10 (4): 353–376.
- Hill, Jonathan and Fernando Santos-Granero (eds.), 2002, *Comparative Arawakan Histories: Rethinking Culture Area and Language Group in Amazonia*. University of Illinois Press, Urbana.
- Kern, Dirse, 2003, The distribution and variation of ADE in the Brazilian Amazon. In *Amazonian Dark Earths: Origins, Properties, and Management*, edited by Johannes Lehmann, Dirse Kern, Bruno Glaser, and William I. Woods, pp. 51–71. Kluwer Academic Publishers, Dordrecht.
- Jenkins, Richard, 1996, *Social Identity*. Routledge, London.
- Jenkins, C., 1999, Tupi-Guarani. In *Handbook of Amazonian Languages*, edited by R. M. W. Dixon and A. Y. Aihkenvald, pp. 125–164. Cambridge University Press, Cambridge.
- Jones, Sian, 1997, *The Archaeology of Ethnicity*. Routledge, London.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, London.
- _____, A. Gephart-Sayer, and A. M. Mester, 1985, The roots of the Shipibo artstyle: three waves at Imariacocha or were there ‘Incas’ before the ‘Inca.’ *Journal of Latin American Lore* 11: 31–119.
- Lehmann, Johannes, Dirse Kern, Bruno Glaser, and William I. Woods (eds.), 2003, *Amazonian Dark Earths: Origins, Properties, and Management*. Kluwer Academic Publishers, Dordrecht.
- Lima, Helena Pinto, Eduardo G. Neves, and James B. Petersen, 2006, A fase Açutuba: Um novo complexo cerâmica na Amazônia Central. *Arqueología Suramericana / Arqueologia Sul-americana* 2 (1): 26–52.
- Martius, K. F. von, 1869, *Beiträge zur Ethnographie und Sprachengenkunde Südamerika's zumals Brasiliens*. Freidrich Fischer, Leipzig.
- Medina, José Toribio (ed.), 1988, *The Discovery of the Amazon*. Dover, New York.
- Meggers, Betty J., 1971, *Amazonia: Man and Culture in a Counterfeit Paradise*. Aldine, Chicago.
- _____, and Clifford Evans, 1957, *Archaeological Investigations at the Mouth of the Amazon*. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____, and Clifford Evans, 1961, An experimental formulation of horizon styles in the tropical forest area of South America. In *Essays in Pre-Columbian Art and Archaeology*, edited by Samuel K. Lothrop et al., pp. 372–388. Harvard University Press, Cambridge.
- Murdock, George P., 1951, South American culture areas. *Southwestern Journal of Anthropology* 4: 415–36.
- Neves, Eduardo G., 2005, A arqueologia amazônica. *Scientific American Brazil*.
- _____, and James B. Petersen, 2006, The political economy of pre-Columbian Amerindians: landscape transformations in central Amazonia. In *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*, edited by William Balée and Clark L. Erickson, pp. 279–310. Columbia University Press, New York. (in press).
- _____, J. B. Petersen, R. N. Bartone, and C. A. Silva, 2003, Historical and socio-cultural origins of Amazonian dark earths. In *Amazonian Dark Earths: Origins, Properties, and Management*, edited by Johannes Lehmann, Dirse Kern, Bruno Glaser, and William I. Woods, pp. 29–50. Kluwer Academic Publishers, Dordrecht.

- _____, J. B. Petersen, R. N. Bartone, and M. J. Heckenberger, 2004, The timing of terra preta formation in the Central Amazon: archaeological data from three sites. In *Amazonian Dark Earths: Explorations in Space and Time*, edited by Bruno Glaser and William I. Woods, pp. 125–134. Springer Verlag, Berlin.
- Nimuendajú, Curt U., 1944, *Mapa Etno-histórico*. IBGE, Rio de Janeiro.
- _____, 1952, *The Tapajo*. Kroeber Anthropological Society, Paper No. 6. University of California, Berkeley.
- Noelli, Francisco Silva, 1998, The Tupi: explaining origin and expansions in terms of archaeology and historical linguistics. *Antiquity* 72: 648–663.
- Petersen, James B., Eduardo G. Neves, and Michael J. Heckenberger, 2001, Gift from the past: terra preta and prehistoric Amerindian occupation in Amazonia. In *Unknown Amazon: Culture and Nature in Ancient Brazil*, edited by Colin McEwan, Cristiana Barreto, and Eduardo G. Neves, pp. 86–105. British Museum Press, London.
- _____, Eduardo G. Neves, and William I. Woods, 2005, Tropical forest archaeology in central Amazonia: landscape transformation and sociopolitical complexity. Paper presented at the Society for American Archaeology annual meeting, Salt Lake City, April 2005.
- Pires de Campos, A., 1862 [1720]. Breve notícia que dá o capitão Antônio Pires de Campos do gentio que há na derrota da viagem das minas de Cuyabá e seu recôncavo. *Revista Trimestral do Instituto Histórico, Geográfico e Etnográfico do Brasil* 5: 437–449.
- Posey, Darrell A., 2004, *Indigenous Knowledge and Ethics: A Darrell Posey Reader*. Routledge, London.
- Rappaport, Roy, 1994, Post-Modern Science. In *Assessing Cultural Anthropology*, edited by Robert Borofsky, pp. _____. McGraw-Hill, New York.
- Rodrigues, A., 1999, Macro-Tupi. In *Handbook of Amazonian Languages*, edited by R. M. W. Dixon and A. Y. Aihkenvald, pp. 107–124. Cambridge: Cambridge University Press.
- Roosevelt, Anna C., 1980, *Parmana: Prehistoric Maize and Manioc Subsistence along the Amazon and Orinoco*. Academic Press, New York.
- _____, 1989, Resource management in Amazonia before the Conquest: beyond ethnographic projection. *Advances in Economic Botany* 7: 30–62.
- _____, 1991, *Moundbuilders of the Amazon: Geophysical Archaeology on Marajó Island, Brazil*. Academic Press, San Diego.
- _____, 1997, *The Excavations at Coroza, Venezuela: Stratigraphy and Ceramic Seriation*. Yale University Publications in Anthropology No. 83. New Haven.
- _____, 1999, The development of prehistoric complex societies: Amazonia, a tropical forest. In *Complex Politics in the Ancient Tropical World*, edited by Elisabeth A. Bacus and Lisa J. Lucero, pp. 13–33. Archaeological Papers of the American Anthropological Association. No. 9. Washington, D.C.
- Schaan, Denise, 2004, The Camutins Chiefdom: Rise and Development of Social Complexity on Marajó Island, Brazilian Amazon. Ph.D. dissertation. Department of Anthropology, University of Pittsburgh.
- Schmidt, M., 1917, *Die Aruaken*. Leipzig.
- Steinen, K. v. d., 1886. *Durch Zentral Brasilien*. F. Brockhaus, Leipzig.
- Steward, Julian H., 1946–1950, *Handbook of South American Indians*, 6 vols. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- _____, and Louis Faron, 1959, *The Native Peoples of South America*. McGraw-Hill, New York.
- Strathern, Marilyn, 1999, *Property, Substance, and Effect: Anthropological Essays on Persons and Things*. Athlone, London.
- Sweet, D. G., 1974, A Rich Realm of Nature Destroyed: The Middle Amazon, 1640–1750. Ph.D. dissertation, University of Wisconsin.
- Viveiros de Castro, Eduardo B., 1984, Proposta da um II Encontro Tupi. *Revista de Antropologia* 27/28: 403–407.
- _____, 1992, *From the Enemy's Point of View: Humanity and Divinity in an Amazonian Society*. University of Chicago Press, Chicago.
- Whitehead, Neil L. (ed.), 2003, *Histories and Historicities in Amazonia*. University of Nebraska Press, Lincoln.
- Wissler, Clark, 1917, *The American Indian: An Introduction to the Anthropology of the New World*. Oxford University Press, New York.
- Woods, William I. and Joseph M. McCann, 1999, The anthropogenic origin and persistence of Amazonian dark earths. *Yearbook of the Conference of Latin American Geographers* 25: 7–14.

The Archaeology of Northern Chile

MARIO A. RIVERA

INTRODUCTION

This chapter considers prehistoric patterns of interaction in northern Chile from the time of the early agricultural settlements to the late pre-Hispanic period. Northern Chile encompasses the Atacama Desert and oases and the western valleys of the Andes mountains (Figure 48.1), more or less south to the location of contemporary Santiago/Copiapó. It is an “Andean” region in cultural, geographic and environmental terms, in contrast to the area lying south, a region characterized by temperate forests, steppes, fjords, islands, high rainfall, and extremely simple societies from the earliest prehistoric occupations through the ethnographically known peoples of Patagonia and Tierra del Fuego (see McEwan et al. 1997 for the most current discussion).

The Highland Andean Tradition appeared in northern Chile by the time the old Chinchorro tradition was dying out (see Chapter 3 in this volume), overlapping Chinchorro for a period of five hundred years, and running up to recent times. Within this Andean Tradition a specific suite of features from the circum-Titicaca/altiplano area intruded into the coastal valleys of northern Chile as a result of influence from altiplano societies.

The manifestation of influences from the altiplano that developed in the western valleys was somewhat different from those influences in the Atacama Desert zone. In the former, it seems there was a more direct relation to the circum-Titicaca area, becoming a constituent part of the emerging civilization that later centered on the Tiwanaku state. In the desert, the influence was rather indirect and more symbolic. This is identified with the Alto Ramirez development in both the western valleys and the Atacama Desert. My essay begins with Alto Ramirez and continues through the Inca conquest (see Figure 48.2).



Figure 48.1. Map of northern Chile with location of some sites mentioned in the text. (Mario Rivera)

ALTO RAMÍREZ PHASE (CA. 1000 BC-300/500 AD)

The Alto Ramírez phase seems to have been contemporaneous with Pukara and other Lake Titicaca Basin societies of the (Peruvian) Early Intermediate Period, such as Qaluyu, Chiripa, Pukara, Wankarani and Early Tiwanaku (Rivera 1976, 1994, 2002). Features of the Alto Ramírez phase have been found throughout the Azapa Valley, in the lower Camarones Valley, at coastal sites in Iquique, and at Caleta Huelén as well as inland in Tarapacá-40, Caserones, Guatacondo, and San Pedro de Atacama. Alto Ramírez introduced a new agricultural technology that, complemented with herding, made possible a population increase by producing an important food surplus. These processes are partly responsible

TIME	NORTHERN CHILE		PERIOD
	AZAPA VALLEY WESTERN VALLEYS	SAN PEDRO ATACAMA DESERT	
1400 (POCOMA) (GENTILAR)	INKA CHILPE	INKA	LATE
1200			
1000	SAN MIGUEL	S. PEDRO ATACAMA III	<i>REGIONAL DEVELOPMENTS</i>
800			
	MAYTAS	COYO	MIDDLE
600			
		SAN PEDRO ATACAMA II	
400	CABUZA	QUITOR	
AD 200		SAN PEDRO ATACAMA I	EARLY
	ALTO RAMIREZ III	SEQUITOR	
“0”			
200			
400	ALTO RAMIREZ II		
600			
800	TILOCALAR	TRANSITION	
1000 BC	ALTO RAMIREZ I		

Figure 48.2. Chronology of prehispanic cultural development in northern Chile. (Mario Rivera)

for the development of the first villages (Azapa 83, Caserones, Ramaditas, and Guatacondo among others) in the area.

Intensive irrigated agriculture included leading staples such as quinoa, maize, hot peppers, beans, squashes, and gourds. Alto Ramírez people probably viewed their ecological niches located in the altiplano, on the valleys and on the coast, as part of the same framework based on the production of different but specialized goods and conforming a complex system of resources. This also required a flexible technology that allowed people to maintain a high level of productivity. There was a well-structured political organization in which the deity known as Tunupa became a symbol constituting the essence of the system (see end of penultimate section in this chapter).

The whole Alto Ramírez sequence seems to be corroborated at Tarapacá where Núñez (1982) has defined three occupational episodes at dwelling sites along the Quebrada Tarapacá. These are:

- Alto Ramírez I (1000-400 BC): evidence comes particularly from sites Tarapacá 6 and 7; the phase includes the cultivation of maize, use of early pottery related to Altiplano Wankarani, dwellings made out of canes
- Alto Ramírez II (400 BC-AD 1): featuring a rectangular dwelling pattern; best represented at Caserones sites Tarapacá 6, 7 and 40B, a burial site
- Alto Ramírez III (AD 1-600): exemplified by the final occupation levels at Tarapacá 40A and B which include a ceremonial plaza and defensive wall and modeled pottery.

The Alto Ramírez assemblage included atlatls with a rectangular platform similar to those of type G (Rivera and Zlatar 1982: plate 2); metal ornaments of gold and silver;



Figure 48.3. Alto Ramirez phase hat with stepped designs, from site AZ-71. (Photo: Mario Rivera)

double shaft spoons (Espouey 1972:83); implements of the hallucinogenic complex such as spatulas, boxes, tubes, and trays; sophisticated and well manufactured basketry; sand grit-tempered pottery that is generally undecorated but with spatulated surfaces and of globular and kero shapes; textiles that document the introduction of the “kelim” technique, decorated with geometric and anthropomorphic designs (Figures 48.3, 48.4). Some of them have been defined as Pukara affiliated (Rivera 1977: 43, 1980).

At the site of Azapa-71, Alto Ramírez artificial mounds containing burials have been found with offering of copper and silver ornaments with lizard shape (Santoro 1980), similar to Asiruni-Pajano style from the circum-Titicaca area (Browman 1997).

TIWANAKU INFLUENCE (ca. 300–1100 AD)

The beginning of Tiwanaku influences in the western valleys is detectable during the Cabuza phase (AD 300–700). It consists of black-on-red ware with geometric designs, popularizing the kero shape, bowls, and jars. A variation of Cabuza is the Sobraya style, which introduced white color outlining black designs. Burial mounds are no longer in use; instead Cabuza introduced flexed bodies covered with woolen shirts in a bundle fashion.

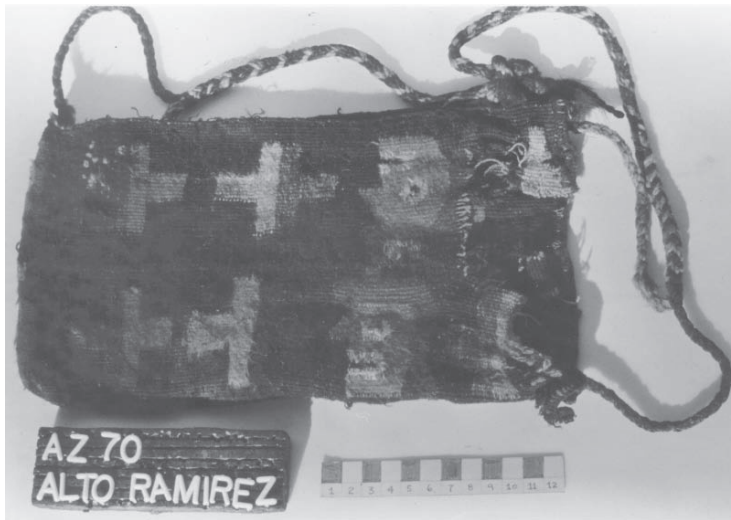


Figure 48.4. Alto Ramirez phase textile with Pukara like designs, from site AZ-71. (Photo: Mario Rivera)



Figure 48.5. Cabuza phase four-pointed shape hat. (Photo: Mario Rivera)

Turbans are replaced by braided hair, similar to some depictions from Tiwanaku (Arriaza et al. 1986). A characteristic four-pointed woolen cap was shaped with textile techniques that include the “floating warp,” which produces polychrome designs (Figure 48.5). Another outstanding feature is woodcarving which produced keros, boxes, trays and, notably, spoons (for their typology see Espouey 1972). Leatherwork as well as basketry is also well known. There are sandals, strings, quivers, and bags of several types. Coiled basketry is by far the most common technique, and shapes imitate those of ceramics. Gold and silver metalwork is also known; there are examples of plaques, adornments, rings and beads. Villages of this phase contain large numbers of storage rooms, suggesting intensive

economic redistributive practices in terms of the ecological complementarity model (e.g., Murra 1972; Stanish 1992), with people located in different ecozones.

Research in the western valleys has provided two different interpretations about the nature of Tiwanaku in north Chile. The interpretations pose political integration into the Tiwanaku state against incorporation into the *economic* patterns of ecological complementarity that developed throughout the Tiwanaku sphere. Either actual Tiwanaku colonies were interacting with local ethnic groups, or Tiwanaku influences represent part of a continuous development from earlier groups that settled the area. This latter interpretation is supported by biological anthropologists under a micro-evolutionary model (Sutter 2000), and is bolstered by textile analyses of pre-Inca clothing styles where variability in Azapa is thought to have been the result of achieved status differences (Cassman 1997, 2000: 253–266).

Data from Azapa support the colonization hypothesis with direct Tiwanaku influence over Cabuza people. A systematic settlement pattern survey of the middle Azapa Valley found 54 sites with Azapa-Tiwanaku or Cabuza sherds. Of these, 15 sites included ceramics of both styles; 27 yielded only Cabuza, and 12 had only Azapa Tiwanaku fragments (Goldstein 1996; Goldstein and Rivera 2004).

Other biological studies show a high rate of infant mortality (Arriaza et al. 1984). Coupled with studies on pneumonia frequencies it can be concluded that Cabuza people were facing problems of adjustment typical of newcomers to a different environment (Aufderheide et al. 2002). Gene flow from the highlands was more intense during the Middle Period (ca. AD 500–900) as a consequence of the demographic pressure posed by Tiwanaku, possibly under a process of migration not controlled by the state (Rothhammer and Santoro 2001: 63). Furthermore, analyses of DNAmt samples from the Tiwanaku site in Bolivia suggest the presence of foreign groups in Azapa (Rothhammer et al. 2004: 151).

The location of Azapa Tiwanaku and Cabuza sites suggests a preference for zones best suited for irrigated cultivation different from the coastal focus of the earlier indigenous peoples. The most prominent Azapa sites that contain typical Tiwanaku components are AZ-83, a village site in Alto Ramírez; AZ-75, a cemetery site at San Lorenzo; AZ-143 in Quebrada del Diablo; and Atoca-1, where Cabuza and Tiwanaku sherds are characteristic as well as, reportedly, the only Wari-style pottery yet to have been found in Chile (Muñoz 1986: 314; Muñoz and Santos 1996).

In the Atacama Desert, and most notably in the salt puna region and in the San Pedro de Atacama oasis, the Quito phase represents an equivalent to Cabuza of the Azapa Valley. Quito (AD 400–700) had its antecedents with previous Alto Ramírez development at different sites (Tulor, Tchapuchayna), conforming the San Pedro I period (Orellana 1963; Ayala 2001). San Pedro I, also called Sequito phase (Berenguer et al. 1986), features burial mounds, villages of circular domestic structures, irrigated agricultural fields, copper metallurgy, use of gold alloys, and the San Pedro Red Ware ceramic style.

San Pedro II developed throughout the Middle Period when Tiwanaku influences were important. Black Polished Ware ceramics are diagnostic (Figure 48.6). They have varied shapes such as bottles, dishes and bowls. These vessels account for 82% of the total funerary pottery in San Pedro (Tarragó 1976). Bottle necks display modeled human faces as decorative motifs and there are bowls with incised motifs, particularly stylized llamas.

Evidence of a strong interaction with other areas is overwhelming. Evidence extends as far as Quebrada Tarapacá (Caserones), northwestern Argentina (Calahoyo, Hualfín, Calchaquí), and coastal sites in Antofagasta and Taltal, where San Pedro II pottery is well known. These constitute additional evidence of caravan travel across the desert. During



Figure 48.6. Black polished incised bowl from San Pedro Atacama. (Photo: Mario Rivera)

San Pedro II typical Tiwanaku iconographic designs are found in about 15% of San Pedro burials (Berenguer and Dauelsberg 1989).

Tiwanaku influence in northern Chile is represented by the Maytas phase (AD 700–1100) in the western valleys, and Coyo in the San Pedro de Atacama region (sites of Coyo, Solor-3, Quitor-5, and Quitor-6). The latter exhibit the most outstanding Tiwanaku influence in the oases area (Berenguer and Dauelsberg 1989; Thomas et al. 1985). But this influence has an elite nature: there are undisputed Tiwanaku objects (golden keros, textiles, basketry, ceramic vessels, wooden objects) appearing in the burials of important local authorities. All this suggests that Tiwanaku ritual and ideology were incorporated into San Pedro's local development. It is still a matter of speculation as to whether this elite class of deceased individuals was of local origin, and invested by Tiwanaku rulers with some symbolic artifacts, or whether the deceased were true Tiwanaku dignitaries ruling in the oases zone (Llagostera et al. 1988). No clear consensus has yet emerged as to whether Tiwanaku-influenced people in San Pedro de Atacama represent an actual migration of groups from the Titicaca area (Núñez 1963; Tarragó 1984), or if they are the result of an ideological penetration (Berenguer and Dauelsberg 1989).

At the same time there was a close relation between San Pedro II and the La Aguada culture of northwestern Argentina (see Chapter 30 in this volume). La Aguada was an important cultural development in the Argentinian Middle Period (ca. AD 650–1000), and currently there is insufficient knowledge for explaining the strong Tiwanaku influence there (González 1998).

Amy Oakland Rodman's study of textiles in tombs at Coyo Oriente, a burial site in San Pedro de Atacama, concluded that a small group had been differentiated that may represent an ethnic enclave of Tiwanaku colonists (Oakland Rodman 1992: 336). San Pedro's local, yet highly elite, burial contexts probably show that Tiwanaku had different trade relations with San Pedro ayllus, promoted by competition among them to become favored and protected clients (Goldstein and Rivera 2004: 167). For instance, burials from the Larache,

Quitor and Solcor ayllus included unique Tiwanaku ceramics and gold artifacts (Le Paige 1964; Llagostera 1996; Orellana 1985; Barón 2004; Tamblay 2004).

Tiwanaku presence in the small Atacama Desert communities could be explained as local elites: chiefs who formed alliances with traders or other representatives from Tiwanaku. These alliances were possible because as Tiwanaku emerged, the ayllus of San Pedro de Atacama probably were ruled by several competing lineages (Thomas et al. 1985: 268). Therefore, each lineage sought alliances with foreign rulers in order to promote and protect its interests, resulting in an exchange of political, religious, and ideological concepts, as well as art objects that would emphasize this connection. This would explain the appearance of Tiwanaku iconography as part of the ideology of San Pedro de Atacama.

In the western valleys farther north, Tiwanaku influences continued into the so-called Expansive Tiwanaku phase. The archaeological record shows continuity from Cabuza into later developments like Maytas and Chiribaya. Vessels of these styles represent more local developments, containing few Tiwanaku attributes, mainly of shapes like keros. The Maytas (AD 700–1100) ceramic style is characterized by black and white designs on red slip (triangles, undulating lines, and concentric geometric designs). Chiribaya (far south coast of Peru) is basically the same style as Maytas, with an emphasis on white lines of successive dots along the black designs, and more concentric panels, sometimes divided into four to six or eight radiated sections, distributed as designs.

Tiwanaku expanded over much of northern Chile, particularly the western valleys, which were in direct contact with the core Titicaca basin area. Outposts in Azapa emphasize common beliefs so strongly that they seem to represent true ideological colonies (Rivera 1985, 2004). A different alternative considers Tiwanaku expansion as a planned, three-step process based on a prestige economy: first, the creation of a semiperiphery in the circum Titicaca region; second, the incorporation of the periphery, particularly the western valleys; and third, the utilization of the ultraperiphery, in the Atacama Desert and puna region, where Tiwanaku sought exotic prestige goods (Berenguer and Dauelsberg 1989).

REGIONAL DEVELOPMENTS (ca. 1000–1400 AD)

Regional Developments is the period of time during which regional cultures emerged after Tiwanaku influence and before the spread of the Inca Empire. However, Tiwanaku influence in the preceding period had been so strong on the local cultures, that those developing subsequently can never be considered completely local in character. Nevertheless, there are differences. This period was more locally developed in the desert region than in the western valleys where new, post-Tiwanaku altiplanic ethnic groups continued to arrive and settle. In the salt puna and desert regions the rupture with circum Titicaca polities occurred with the last Tiwanaku event.

With the end of the Tiwanaku state all sorts of ethnic groups began to re-arrange themselves on the landscape. These groups are identified with the Black-on-Red ceramic tradition, occupying the upper valleys, precordillera and altiplano. In the low valleys and coastal environments the Polychrome Pottery Tradition seems to be predominant. This continuous movement of people out from the Lake Titicaca region to southern Peru, northern Chile, and northwestern Argentina was the cause for the construction of fortifications (known in Quechua as pukaras) among many local settlements, in an attempt to defend themselves. Settlements of Black-on-Red pottery producers represent enclaves that controlled access to productive lands. The economic organization developed complementary

activities that emphasized redistribution through full development of the vertical archipelago system (economic complementarity), especially in the western valleys. Goods from different ecozones, including the tropical forest, the highlands, and the Pacific coast are found at the pukaras.

This active mobility is reflected archaeologically in a mosaic of cultural phases, synchronically interdigitated, reaching a level of self-sufficiency under the regulatory principles of vertical complementarity. Arts and craft specialization of ceramics and textiles became highly distinctive and stylized.

Settlement patterns for this period consist of large residential sites that cover areas varying between 0.5 and 7 ha, especially along the western valleys. Most representative are the sites of Saxamar, Copaquilla, San Lorenzo, Purisa, Tangani, and Huaihuarani, located at strategic points, many with defensive walls and dense occupations. Depending on the topography of the landscape, these settlements are surrounded by extensive agricultural facilities, open fields, or terraces. Some of the sites are also associated with mortuary buildings of adobe (chullpas), particularly in the highlands.

In the lowlands the Arica Complex consists of two successive phases: San Miguel and Gentilar, equivalent to Arica I and II (Bird 1943; Dauelsberg 1972). These phases have ceramic styles with polychrome designs; there is a final transitional style called Pocoma. Chronologically the beginning of San Miguel is estimated at AD 1000, while Gentilar is estimated to begin by AD 1350.

The San Miguel style corresponds to big globular water jars with flat bases, vertical handles and narrow necks, keros and vessels with modeled figures on the rim, and anthropomorphic or zoomorphic vases. Decorative designs consist of geometric motifs painted in black or red and black on a white slipped surface (Figure 48.7).

Gentilar, on the other hand, is a better quality and thinner pottery. Water jars with flaring necks are the most common. Designs are black, white and red on a smooth red



Figure 48.7. San Miguel style globular water jar, Azapa Valley. (Photo: Mario Rivera)



Figure 48.8. Gentilar style ceramics, Azapa Valley. (Photo: Mario Rivera)

slip. The motifs are extremely varied, mainly of geometric figures, but also crosses, anthropomorphic and zoomorphic designs (Figure 48.8).

The Pocoma style consists of designs distributed in panels with light red color as background and separated by vertical lines. The spatial distribution of these styles includes the western valleys of northern Chile and the valleys of southern Peru, particularly Caplina, Sama, and Osmore. Exceptionally, they also extended south of Pisagua, especially at coastal sites such as Caleta Huelén and Taltal. Towards the altiplano the distribution reached the headwaters of valleys in the precordillera, and even into the Titicaca region in the territory of the Lupaqa kingdom (Hyslop 1976).

In the Azapa region the Black-on-Red ware is defined as the Chilpe style, which is contemporaneous with the Gentilar style on the coast. Chilpe is considered a post Tiwanaku style and identified also in the altiplano as the Collao style, related to the expansion of Colla kingdom people (Schaeffel and Munizaga 1957) that, by AD 1300, initiated the process of “Aymarization” in Azapa (Dauelsberg 1982).

In San Pedro de Atacama this period is represented by San Pedro III phase (AD 1000–1450), at sites such as Pukara Quitar and Solor. Elsewhere in the desert this period is represented at Lasana (Lasana II phase) in the mid course of the Loa River (Pollard 1971) and Pukara Turi, in the upper Salado River, a tributary of the Loa.

In the salt puna, above 3,000 masl, the Toconce Mallku complex dominated, with over twenty sites known around the Toconce area (Aldunate and Castro 1981). This complex is related to the LÍpez region of southern Bolivia. Its most distinctive feature consists of settlements containing three clearly separate areas: the dwelling area itself, a chullpas or mortuary section, and storage facilities. The dwellings are made up of rectangular houses, numbering between twenty and two hundred, in a clustered pattern with contiguous stone walls. The pottery is mostly undecorated, and known as Likan Ordinary ware, with big globular jars. There is also the Likan Red ware, represented mostly by bowls, and Hedionda Black-on-Beige, with geometric designs on the inside rim (Schiappacasse et al. 1989).

In these western valleys and dry puna, altiplano cultural influences share interesting similarities with late developments in Bolivian and Argentinean puna environments.

LATE PERIOD: INCA CONTROL

The western valleys were directly incorporated into the centralized Inca state system. However, the ancient patterns of economic complementarity changed little as the new sociopolitical regime co-opted the old.

During the preceding period (ca. AD 1000–1400) economic complementarity had been achieved by colonies of altiplano ethnic groups, such as Lupaqas, Pacajes, and Carangas in the valleys of Lluta, Azapa, Codpa, and Camarones. The strong relationship of western valleys to the circum Titicaca zone was reinforced during the Late Period defined by Inca presence. Under Inca control *tambos* and *pukaras* in Chungará, Belén, Zapahuira, and Purisa, or villages like Alto Ramírez (Azapa-15) were integrated into networks centered in the altiplano. Production and exchange of goods was paramount in this relationship, including coastal sites such as Playa Miller and Lower Camarones.

As economic relations were reinforced, so too was the ideological-political framework. In this sense, ceramics from the Lake Titicaca region, such as Saxamar or Inca-Pacajes, are also known in western valleys (Dauelsberg 1959; Munizaga 1957; Ryden 1947). Reutilization of the old caravan road system by the later Inca expansion played an important role in consolidating the whole area.

The Atacama Desert, on the other hand, represents a different condition. Here imposition of control on the local population had to be completed in order to extend the empire. Direct domination is documented at Catarpe, Peine, Turi, and Cerro Verde, where typical Inca architectural structures were superimposed on the old settlement plan.

There seem to have been well defended Inca posts, with a road leading into them, also protected. These sites had high population density, and the buildings clustered around a central courtyard. The settlements are located in strategic positions in relation to the valleys and the cultivable lands.

The Inca highway also was crucial in maintaining political relations. However, the local populations of San Pedro de Atacama and neighboring oases did not participate in the same ideological system as the Incas. Neither complementarity nor other economic and political relations with the altiplano or the Incas were so complete as in the coastal valleys to the north. Rather they retained a certain separation, avoiding complete integration into regional systems.

In addition to the Inca road system, sanctuaries located on top of the Andes main mountains such as Pili, Lincancabur, and Salín, and, exceptionally, on the coastal cordillera at Cerro Esmeralda in Iquique, were important as reinforcements to the Inca occupation.

The desert was an important part of the Inca Empire, as a source of minerals, especially turquoise and copper. Mining activity was centered on Catarpe (Silva 1985) as well as El Salvador and Viña del Cerro from the Copiapó area, where administrative officials were put in charge of its production. The Incas also contributed new mining techniques, including foundries and amalgamation procedures, which differ from the simpler extractive techniques of the Late Period (ca. AD 1350–1520).

From San Pedro de Atacama south to Copiapó, and still within the desert environment, the Inca expansion was less intensive. Around Copiapó was the last truly Inca post and probably from there southwards the Incas organized their conquest by indirect means. For example, in the Chañar Valley the Incas extracted only tribute of gold and turquoise, according to chronicler Gerónimo Bibar (1558).

Since monumental architecture is absent in northern Chile, its integrating political role may have been taken by the high altitude sanctuaries, which are so numerous along the

southern Andes. They held profound symbolic meaning that may have favored Inca conquest south of the Atacama Desert. According to Reinhard (1983), in the case of Socaire, the pre-Inca sanctuary was probably related to rituals for guaranteeing the supply of water for agricultural purposes, a religious practice apparently shared with the Incas.

On the other hand, this emphasis on sanctuaries and mountains—which required intense and specialized labor particularly in building platforms and roads in such as a high altitude conditions—seems to come from the Tunupa myth of origin from even earlier times (Rivera 1985). It is probably related to fertility beliefs, since mountains face the ocean (the main source of water) and, therefore, are connected to the origin of life. The whole system could have functioned with a central hierarchy promoting strong ideological beliefs in order to involve the local people in a network embracing all the southern Inca territories. In some respects, the sanctuaries replaced monumental administrative centers characteristic of Inca occupation elsewhere.

CONCLUSION

Northern Chilean prehistory shows a complex cultural development process from the time the first Andean highland influences impacted the area. From ca. AD 300, settlements experienced processes promoting urbanization and more stable societies, in part based upon developments emanating from the Tiwanaku and Inca states.

Cultural evolution during the first millennium AD in northern Chile is characterized by the coexistence of economically interlaced groups. First with Alto Ramírez, then more intensively under Tiwanaku domination, each of the interacting valleys, oases, and highland polities, nonetheless, showed some degree of autonomy. As a whole, the region was composed of a mosaic of small political entities in whose coherence ideology played an important role. However, independent local components participated in processes of regionalization that was certainly different from the process of urbanization propelling state societies in the Central Andean area. Northern Chile became exceptional for its cultural diversity in the achievement of social complexity. Local autonomy made cultural discontinuity and microregionalization possible.

The harsh and arid environment of northern Chile provides a unique context for studying how organized communities of Andean people developed extreme strategies for survival. Chilean prehistory represents a remarkable and successful process that can still be studied among peoples surviving today. It also represents a past experience from which we, as contemporary witnesses, can learn for future planning of development, particularly with reference to those actions related to arid environmental problems.

There are also fertile grounds for further research in connection with the ideological foundations by which pre-Hispanic cultures developed, a matter that can be approached through the combined study of Andean mythology and its contribution to the state emergence process in western South America.

Mobility patterns represent another interesting issue, especially considering the isolated conditions in which people lived in the vast Chilean desert. It seems that these patterns were thoroughly institutionalized in the Andean area, and that they could have interesting implications for the study of the origins of Andean civilization. Caravanning certainly determined connections among neighboring regions and is essential for reconstructing cultural processes in marginal areas, along with their integration into better known developments in core regions.

REFERENCES

- Aldunate, Carlos and Victoria Castro, 1981, *Las Chullpas de Toconce y Su Relación con el Poblamiento Altiplánico en el Loa Superior, Período Tardío*. Kultrun Ediciones, Santiago.
- Arriaza, Bernardo, Marvin Allison, Guillermo Focacci, and Enrique Gerszten, 1984, Mortalidad materna y de la niñez en el área de Arica prehispánica y conceptos asociados. *Chungará* 12: 161–172.
- , Marvin Allison, Vivien Standen, Guillermo Focacci, and Juan Chacama, 1986, Peinados precolombinos en momias de Arica. *Chungará* 16–17: 353–375.
- Aufderheide, Arthur C., Saras Aturaliya, and Guillermo Focacci, 2002, Pulmonary disease in a sample of mummies from the AZ-75 cemetery in northern Chile's Azapa Valley. *Chungará* 34 (2): 253–263.
- , Marvin Allison, Marc Kelley, Mario A. Rivera, J. Shipman, and Larry Tieszen, 1990, The Prehistory of Pneumonia in the Atacama Desert. Ms. on file, Paleobiology Lab, University of Minnesota, Duluth.
- Ayala, Patricia, 2001, Las sociedades formativas del altiplano cicontitica y meridional y su relación con el norte grande de Chile. *Estudios Atacameños* 21: 7–47.
- Barón, Ana María, 2004, Excavación del Cementerio de Larache, Conde Duque en San Pedro de Atacama. In *Tiwanaku, Aproximaciones a sus Contextos Históricos y Sociales*, edited by Mario A. Rivera and Alan L. Kolata, pp. 67–97. Editorial Universidad Bolivariana-LOM, Santiago.
- Berenguer, José and Percy Dauelsberg, 1989, El norte grande en la órbita Tiwanaku. In *Culturas de Chile, Prehistoria*, edited by Jorge Hidalgo, Virgilio Schiappacasse, Hans Niemeyer, Carlos Aldunate, and Iván Solimano, pp. 129–180. Editorial Andrés Bello, Santiago.
- , Angel Deza, Alvaro Román, and Agustín Llagostera, 1986, La secuencia de Myriam Tarragó para San Pedro de Atacama: un test por termoluminiscencia. *Revista Chilena de Antropología* 5: 17–54.
- Bibar, Gerónimo de, 1966, *Crónica y Relación Copiosa y Verdadera de los Reynos de Chile* [1558]. Fondo Histórico y Bibliográfico José Toribio Medina, Santiago.
- Bird, Junius B., 1943, *Excavations in Northern Chile*. Anthropological Papers of the American Museum of Natural History, Vol. 38, Pt 4. New York.
- Browman, David L., 1997, Pajano: Nexus of Formative Cultures in the Titicaca Basin. Symposium: Desarrollo Pre-Tiwanaku en el área Centro Sur Andina. Paper presented at the 49th International Congress of Americanists. Quito.
- Cassman, Vicki, 1997, A Reconsideration of Prehistoric Ethnicity and Status in Northern Chile: The Textile Evidence. Ph.D. dissertation. Department of Anthropology, Arizona State University, Tempe.
- , 2000, Prehistoric Andean ethnicity and status: the textile evidence. In *Beyond Cloth and Cordage, Archaeological Textile Research in the Americas*, edited by Penelope Ballard Drucker and Laurie D. Webster, pp. 253–266. University of Utah Press, Salt Lake City.
- Dauelsberg, Percy, 1959, Contribución a la arqueología del Valle de Azapa. *Museo Regional Arica Boletín* 3.
- , 1972, La cerámica de Arica y su situación cronológica. *Chungara* 1: 17–24.
- , 1982, Prehistoria de Arica. *Diálogo Andino* 1: 31–82.
- Espouey, Oscar, 1972, Tipificación de cucharas de madera de Arica. *Actas VI Congreso Arqueología Chilena Boletín Especial*, pp. 63–109. Universidad de Chile, Santiago.
- Goldstein, Paul, 1996, Tiwanaku settlement patterns of the Azapa Valley, Chile. New data and the legacy of Percy Dauelsberg. *Diálogo Andino* 14–15: 57–73.
- and Mario A. Rivera, 2004, Arts of greater Tiwanaku: an expansive culture in historical context. In *Tiwanaku. Ancestors of the Inca*, edited by Margaret Young-Sanchez, pp. 150–185. Denver Art Museum and University of Nebraska Press, Lincoln and London.
- González, Alberto Rex, 1998, *Arte Precolombino. Cultura La Aguada, Arqueología y Diseños*. Filmediciones Valero, Buenos Aires.
- Hyslop, John, 1976, An Archaeological Investigation of the Lupaqa Kingdom and Its Origins. Ph.D. dissertation. Department of Anthropology, Columbia University, New York.
- Le Paige, Gustavo, 1964, El Precearámico en la cordillera atacameña y los cementerios del Período Agroalfarero de San Pedro de Atacama. *Anales Universidad del Norte* 3: 49–93.
- Llagostera, Agustín, 1996, San Pedro de Atacama: nodo de complementariedad reticular. In *La Integración Surandina Cinco Siglos Después*, edited by Bruno Revesz, pp. 17–42. Centro de Estudios Regionales Andinos Bartolomé de las Casas, Cusco and Universidad Católica del Norte, Antofagasta.
- , Constantino Torres, and María A. Costa, 1988, El Complejo Psicotrópico en Solcor-3 (San Pedro de Atacama). *Estudios Atacameños* 9: 61–98.
- McEwan, Colin, Luis A. Borrero, and Alfredo Prieto (eds.), 1997, *Patagonia. Natural History, Prehistory and Ethnography at the Uttermost End of the Earth*. British Museum Press, London.

- Munizaga, Carlos, 1957, Descripción y análisis de la cerámica y otros artefactos de los valles de Lluta, Azapa y Vitor. *Arqueología Chilena*, pp. 45–58. Universidad de Chile, Santiago.
- Muñoz, Iván, 1986, Aportes a la preconstitución histórica del poblamiento aldeano en el Valle de Azapa (Arica-Chile). *Chungara* 16/17: 307–322.
- and Mariela Santos, 1996, La Waka de Atoca: alfarería Wari en Arica? In *Actas XIII Congreso Nacional de Arqueología Chilena*, Tomo II, pp. 69–80. Antofagasta.
- Murra, John V., 1972, El ‘control vertical’ de un máximo de pisos ecológicos en la economía de las sociedades andinas. *Visita de la Provincia de León de Huánuco en 1562. Vol. 2: Documentos para la Historia y Etnología de Huánuco y la Selva Central*, pp. 427–476. Universidad Nacional Hermilio Valdizán, Huánuco.
- Núñez, Lautaro, 1963, Problemas en torno a la tableta de rapé. *Anales Universidad del Norte* 2: 149–168.
- , 1982, Temprana emergencia del sedentismo en el desierto chileno. Proyecto Caserones. *Chungará* 9: 80–116.
- Oakland Rodman, Amy, 1992, Textiles and ethnicity: Tiwanaku in San Pedro de Atacama, North Chile. *Latin American Antiquity* 3 (4): 316–340.
- Orellana, Mario, 1963, Problemas de la arqueología de San Pedro de Atacama y sus alrededores. *Anales Universidad del Norte* 2, pp. 29–39.
- , 1985, Relaciones culturales entre Tiwanaku y San Pedro de Atacama. *Diálogo Andino* 4: 247–258.
- Pollard, Gordon, 1971, Cultural change and adaptation in the central Atacama desert of northern Chile. *Ñawpa Pacha* 9: 41–64.
- Reinhard, Johan, 1983, Las montañas sagradas. Un estudio etnoarqueológico de ruinas en las altas cumbres andinas. *Cuadernos de Historia Universidad de Chile* 3: 27–62.
- Rivera, Mario A., 1977, Prehistoric Chronology of Northern Chile. Ph.D. dissertation. Department of Anthropology, University of Wisconsin, Madison.
- , 1980, *Temas Antropológicos del Norte de Chile*. Ediciones Universidad de Chile, Antofagasta.
- , 1985, Alto Ramírez y Tiwanaku. Un caso de interpretación simbólica a través de datos arqueológicos en el área de los Valles Occidentales, Sur del Perú y Norte de Chile. *Diálogo Andino* 4: 39–58.
- , 2004, Tiwanaku en la periferia: nuevos elementos para un modelo tarapaqueño en el norte de Chile. In *Tiwanaku, Aproximaciones a sus Contextos Históricos y Sociales*, edited by Mario A. Rivera and Alan L. Kolata, pp. 11–30. Editorial Universidad Bolivariana-LOM, Santiago.
- and Vjera Zlatar, 1982, Las estólicas en el desarrollo cultural temprano prehispánico del norte de Chile. *Boletín del Museo La Serena* 18: 14–34.
- Rothhammer, Francisco and Calogero Santoro, 2001, El desarrollo cultural en el Valle de Azapa, extremo norte de Chile y su vinculación con los desplazamientos poblacionales altiplánicos. *Latin American Antiquity* 12 (1): 59–66.
- Rothhammer, Francisco, Mauricio Moraga, Mario A. Rivera, Calogero Santoro, Vivien Standen, and Pilar Carvallo, 2004, Contratación de las principales hipótesis sobre el origen de los constructores de Tiwanaku recurriendo al análisis de ADNmt de restos esqueléticos exhumados en el sitio arqueológico homónimo. In *Tiwanaku, Aproximaciones a sus Contextos Históricos y Sociales*, edited by Mario A. Rivera and Alan L. Kolata, pp. 151–163. Editorial Universidad Bolivariana-LOM, Santiago.
- Ryden, Stig, 1947, *Archaeological Researches in the Highlands of Bolivia*. Erlanders, Goteborg.
- Santoro, Calogero, 1980, Estratigrafía y secuencia cultural funeraria: fase Azapa, Alto Ramírez y Tiwanaku. *Chungará* 6: 24–45.
- Schaedel, Richard P. and Carlos Munizaga, 1957, *Arqueología Chilena*. Universidad de Chile, Santiago.
- Schiappacasse, Virgilio, Victoria Castro, and Hans Niemeyer, 1989, Los desarrollos regionales en el norte grande (1000 a 1400 D.C.). In *Culturas de Chile, Prehistoria*, edited by Jorge Hidalgo, Virgilio Schiappacasse, Hans Niemeyer, Carlos Aldunate, and Iván Solimano, pp. 181–220. Editorial Andrés Bello, Santiago.
- Silva, Osvaldo, 1985, Informe de Avance. Investigaciones en el Centro Ceremonial Cerro Verde (Talikuna 4), Provincia El Loa. Ms. on file. Departamento Historia Universidad de Chile, Santiago.
- Stanish, Charles, 1992, *Ancient Andean Political Economy*. University of Texas Press, Austin.
- Sutter, Richard, 2000, Prehistoric genetic and culture change: a bioarchaeological search for pre-Inka altiplano colonies in the coastal valleys of Moquegua, Peru, and Azapa, Chile. *Latin American Antiquity* 11 (1): 43–70.
- Tamblay, Javier S., 2004, El Cementerio Larache, los metales y la estratificación social durante el horizonte Tiwanaku en San Pedro de Atacama. In *Tiwanaku, Aproximaciones a sus Contextos Históricos y Sociales*, edited by Mario A. Rivera and Alan L. Kolata, pp. 31–66. Editorial Universidad Bolivariana-LOM, Santiago.

- Tarragó, Miriam, 1976, Alfarería típica de San Pedro de Atacama. *Estudios Atacameños* 4: 37–64.
- _____, 1984, La historia de los pueblos circumpuneños en relación con el altiplano y los andes meridionales. *Estudios Atacameños* 7: 116–132.
- Thomas, Carlos, Antonieta Benavente, and Claudio Massone, 1985, Algunos efectos de Tiwanaku en la cultura de San Pedro de Atacama. *Diálogo Andino* 4: 259–275.

Interaction and Social Fields in San Pedro de Atacama, Northern Chile

EMILY STOVEL

INTRODUCTION

Mortuary remains have long served to define archaeological culture groups, providing both the materials for delineating discrete assemblages and the evidence of unique, culturally bounded manners of treating the dead. Graves also provide evidence of trade and exchange, such that materials are seen to reflect the exchange of ideas and the seeds of social change.

Stanish (1992: 29–30, 2005; Aldenderfer and Stanish 1993), however, has taken issue with the use of grave goods for the study of ethnic affiliation. To trace colonies of core communities in far-flung regions, it is best, he feels, to work with domestic contexts that are not characterized by such high variability in stylistic expression, and objects of high ritual and symbolic value. A true ethnic colony will be expressed in the more mundane world of the household. It follows, of course, that graves are thus not ideal places to look at evidence of interaction as they typically contain higher proportions of high-status goods, including mobile pieces such as exotic non-local ceramics (see Sutter 2005 and Stovel 1997 for complementary discussions). Thus using exclusively mortuary remains would lead one to exaggerate non-local interaction and the impact of foreign communities.

Clearly a broad-based approach to material production and consumption is necessary for any well-grounded archaeological proposition. But should graves be discarded from consideration of identity and interaction as Stanish states? Is it the context that creates the conditions for exaggerating the significance of a non-local component or is it the expectation that non-local objects carry the value of distance and difference? Might it be that because we (the archaeologists) are looking at a grave, we exaggerate the exotic importance of the non-local goods we find there?

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

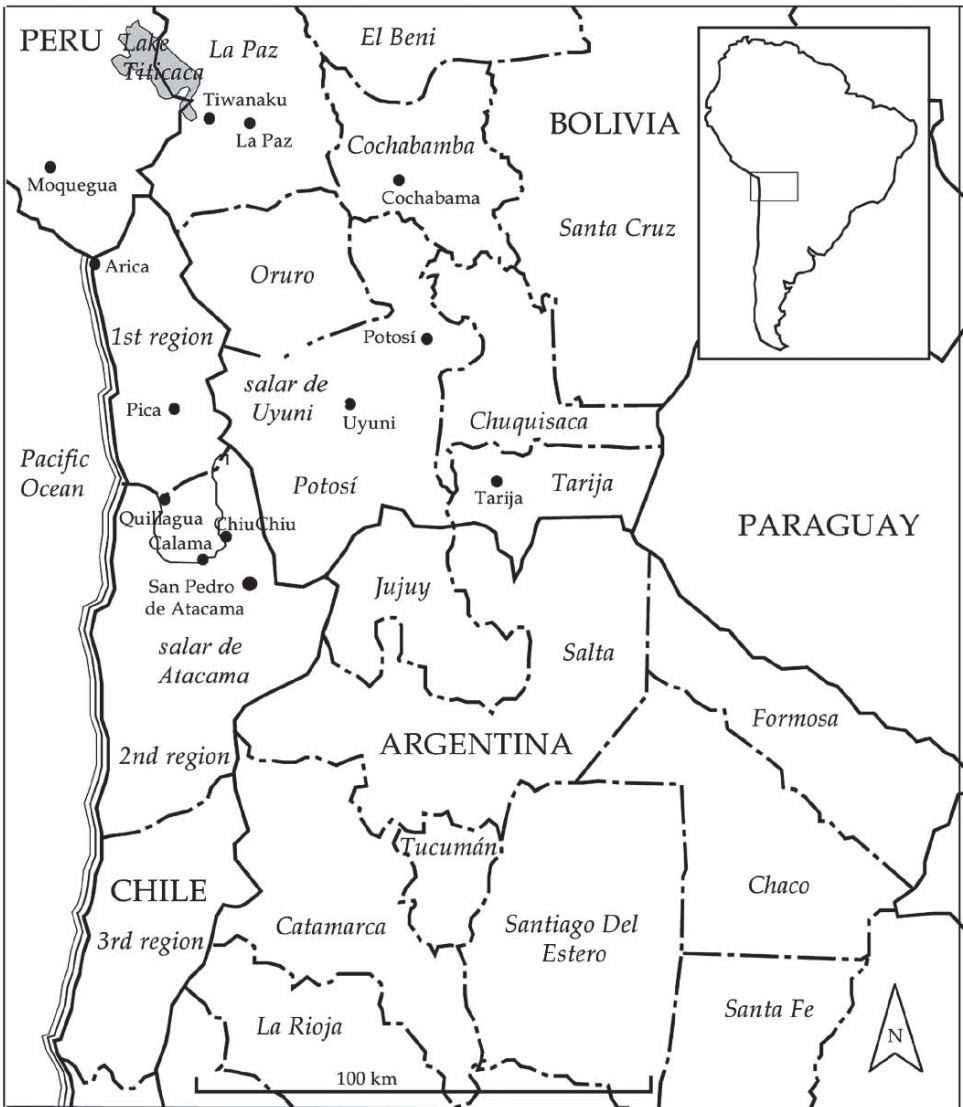


Figure 49.1. The South Central Andes and San Pedro de Atacama. (Emily Stovel)

The following case study demonstrates the possibility that non-local ceramics can express membership in a regional cultural field by representing mundane relationships between community members. It is specifically in the context of the tomb that such relationships might be captured by those engaged in the burial rite. This argument is grounded in the persistent, low-level, and long-term inclusion of non-local vessels from the same regional communities into the graves of prehistoric inhabitants of San Pedro de Atacama, northern Chile (Figure 49.1). It is also grounded in the persistence of discrete, identifiable ceramic traditions from these interconnected communities over 1,500 years of regional integration despite much shared material culture. Although some of these vessels undoubtedly

reflect prestige economies manipulated by local elites—and there are interesting changes in interaction patterns throughout San Pedro prehistory—the regular reoccurrence of often single, potentially emblematic pots brings us to question their exotic value.

This paper addresses these issues through use of the concept of the *social field* (discussed below) in an attempt to put forth a more complex social model for the unique cultural landscape of prehistoric interaction in San Pedro de Atacama.

INTERACTION, GRAVES, AND SAN PEDRO DE ATACAMA

San Pedro de Atacama (Figure 49.2) has figured prominently in the development of key archaeological models of regional interaction and in the revision of imperial models of the highland Tiwanaku state (ca. AD 100–1000). The attention paid to San Pedro de Atacama is due, in part, to the rich diversity of non-local ceramic vessels recovered from almost 6,000 graves, which have been studied extensively (Tarragó 1976, 1989, 1994; Uribe 2002; Uribe and Agüero 2001, 2004; Uribe et al. 2004). Many scholars interpret the data as indicating that San Pedro de Atacama was a key node in prehistoric trade networks (Browman 1984; Llagostera 1996; Núñez 1992, 1996; Núñez et al. 1975; Tarragó 1989; Torres and Conklin 1995). But this interpretation requires nuancing.

Recent research reveals important similarities between the cosmopolitan consumption of non-local ceramics in San Pedro and other sites throughout the region (Angelo 1999; Arellano 2000; Céspedes and Lecoq 1998; Fidel 1993; Lecoq 1985, 1997, 1999; Lecoq and Céspedes 1995–1997, 1997a, b; Mamani 1998; Nielsen 1998, 2000, 2004; Nielsen et al. 1999) including southern Bolivia, extreme northern Argentina and nearby highland Chile (Figure 49.1). These areas all demonstrate the same wide range of non-local ceramic styles. This generalized consumption of non-local vessels would easily point to intense and close-knit trade networks articulating settlements from the Chilean coast to the Amazonian edge of the altiplano. What confound this picture are the low quantities of such vessels or vessel fragments. Throughout the region, non-local ceramics display a rich array of styles, but occur in low quantities, thus insufficient to reflect the impression that they would have accumulated over 1,000 to 2,000 years of trade.

The cosmopolitan consumption of non-local ceramics is not the only similarity found among sites throughout the south-central Andes. Other material similarities between settlements include basketry, wooden implements and engraved gourds (i.e., Agüero 2000; Agüero et al. 1997; Bennett 1948; Berenguer et al. 1980; Castro et al. 1979, 1984; Uribe 1997; Uribe et al. 2004). These similarities suggest that the region constituted a large interaction sphere (or a series of such spheres), a set of peer polities, or a chain of articulated exchange networks, but with the recognition that the resulting web of social relations constituted more than straightforward trade relationships. Exclusive trade models, however, do not work very well in this area because while many material and behavioral correlates are shared that could be the result of years of interaction, ceramic styles remain discrete. In fact, the most significant difference between prehistoric communities in the south-central Andes is found in the production of discrete aesthetic ceramic or textile traditions.

An interesting new avenue of archaeological research has appeared in ethnographic or ethnohistoric considerations of regional cultural systems or what are being called social fields (MacEarchen 1998, 2001; Welsh and Terrell 1998; Terrell 2001; Terrell and Welsh 1990). These case studies describe large cultural complexes characterized by material similarities and differences at various spatial extents, characterizing a number of communities



Figure 49.2. The San Pedro and Río Loa sub-areas. (Emily Stovel)

that are, at once, distinct(ive) and intimately connected. They also provide an alternative to the purely economic trade models that do not entirely capture the social landscape of the prehistoric south-central Andes. This picture of the past not only defies current models that see trade participants as fundamentally in competition for resources, it also undermines the view of communities or social groups as discrete, mutually exclusive entities. Martínez's (1990, 1996, 1998, 2000) parallel research in the Atacama argues for a similar multicultural social system that encompasses northern Chile, southern Bolivia and northwestern Argentina.

THE SOUTH-CENTRAL ANDES AND SAN PEDRO DE ATACAMA

The cultural area of the south-central Andes incorporates southern Bolivia, northwestern Argentina and northern Chile (Figure 49.1). The archaeology of this region is dominated by studies of contact and exchange. Most studies have sought to identify non-local objects in local tomb contexts and explain the social or economic mechanisms by which these foreign objects arrived (e.g., Berenguer 1975, 1978, 1993, 1998; Castro et al. 1994; Llagostera 1996; Tarragó 1977, 1989, 1994). A large proportion has concentrated on the mechanisms of control employed by hierarchal highland polities (i.e., Tiwanaku) on the smaller Chilean communities (Berenguer and Dauelsberg 1989; Browman 1996, 1997; Rodman 1992; Serrancino 1980; Uribe and Agüero 2001, 2004), although there is a concurrent body of literature on the other side of the cordillera in Argentina concerned with long-distance interaction as well (Albeck 1994; Gentile 1986, 1988; Lazzari 1999; Scattolin and Lazzari 1997; Tarragó 1994; Tartusi and Núñez 1995). Many of these investigations comment on the diversity of material culture found at San Pedro de Atacama, which is assumed to be the result of the settlement's role as a key node in the extensive trade networks linking areas of Chile, Bolivia and Argentina. Similar material diversity is also present at other sites in the region: Topater, Pica 8, Rio Loa, Toconce, Chiu Chiu 200, and Quillagua (Figure 49.2; Agüero 1998; Aldunate and Castro 1981; Alliende 1981; Benavente 1978; 1988–89; Fernández 1978; Zlatar 1984).

Many models have been elaborated to explain this material diversity within the cemeteries. Verticality/ecological complementarity (Murra 1972, 1975, 1985a, 1985b), for example, imagines the radiation of colonists from natal communities to diverse ecological niches to diversify and thus stabilize subsistence in unstable high altitude environments. This model has become one of the defining characteristics of central Andean societies as constructed by modern social scientists; archaeological testing, adaptation and critique of this model also exist (e.g., Rostworowski 1977; Shimada 1982; Stanish 1989a, b, 1992, 1994; Van Buren 1996, 1997).

Different explanatory models should have different archaeological implications. In the case of ecological complementarity, archaeological styles should be seen in homogeneous core settlements (typically highland) and inserted into (usually coastal) valleys, shared multicultural valley systems, or multicultural communities comprised of many such colonial enclaves (see Stanish 1992, 2005; see also papers in Aldenderfer 1993). A few non-local objects in houses would indicate trade and exchange relationships, the placement of non-local objects in graves across all classes (i.e., Tiwanaku in San Pedro: Orellana 1984), or the use of specific goods to signal status (i.e., Aguada in San Pedro: Llagostera 1995). At present, we know that core settlements are rarely homogeneous and that, in fact, peripheral areas may be culturally or materially more homogeneous than the core (Blom 1999; Blom et al. 1998; Janusek 2002; Martínez 1998:163). We have archaeological evidence in the Andes of ethnic enclaves occupying coastal valleys or sharing valleys with other groups, but little evidence for multicultural colonial communities (Stanish 2005: 229; but see also Owen 1993 and Reycraft 2005).

In northern Chile and northwestern Argentina, others have proposed that such ecological colonization was complemented by long-distance trade and exchange carried out by large caravans of llamas (i.e., Berenguer 2004; Browman 1990a, b; Korstanje 1998; Neilsen 2001; Núñez and Dillehay 1995), particularly in the south-central Andes (although see Rostworowski 1977 on trade and non-colonial exchange). The Altiplano Mode Model

(Browman 1980, 1984), for example, suggests that the direct exploitation of various ecological niches serves best in vertical landscapes (i.e., mountain ranges), but that differential community specialization in conjunction with caravan trade is more appropriate for vast, horizontal intermountain (southern Andean) plateaus. Browman (1990a, b) proposes that colonization of ecological zones and trade between communities specialized in complementary production occurred simultaneously.

Many attributes of this economic mode are also found in the models of gyratory mobility (*mobilidad giratoria*) (Núñez and Dillehay 1995) and reticular complementarity (*complementariedad reticular*) (Llagostera 1996). Both models see San Pedro de Atacama as a prehistoric node in a large, pan-regional trade network realized through llama caravanning. Núñez and Dillehay (1995) argue that the movement of specific caravanning groups between settled nodes particularly characterized the south-central Andes. These settlements provided the incentive for trade (as a market for extra-regional goods) and logistical support for the caravans. Llagostera's (1996) reticular complementarity attempts to rectify the lack of information about social or political organization in the gyratory model [Note 1]. Llagostera sees San Pedro de Atacama as an important link in the formation of a pan-regional peer polity among powerful trade communities throughout the region negotiated through the consumption of exotic trade goods. Along with others (Berenguer and Dauelsberg 1989), he argues that the development of power by San Pedro elites, based on the control of non-local goods and ideas, developed over time, culminating in the Coyo phase (AD 700 – 1000), coinciding with the economic and ideological presence of the highland Tiwanaku state in the region.

Within this context, we can easily explain the presence of non-local objects in local graves, but why are there so few ceramics after 2,000 years of interaction? All of these studies still see interaction as occurring between communities with autonomous economic goals. Archaeologically, we use material patterning to identify relatively stylistically coherent communities at home (viz. "culture") or abroad (viz. "ethnic group"; but see Bawden 2005 and Stovel 2002 for diachronic studies of political identity construction). My argument proposes that we understand San Pedro inhabitants as participating in a much wider regional "culture" experienced at the family and community level. This does not render the above models obsolete, rather it casts them as mechanisms by which we can understand a wider social world and consider a different expression of belonging in the use of non-local pots as burial furnishings.

SOCIAL FIELDS: PATTERNED SIMILARITIES AND DIFFERENCES IN SOUTH-CENTRAL ANDEAN REGIONAL COMPLEXES

Communities throughout the south-central Andean region were similarly engaged in dense trade networks within which they developed discrete and recognizable stylistic ceramic traditions while also sharing a certain amount of material culture and behavioral correlates. These similarities have led to a number of regional models in the South American literature, such as the Puna complex (Bennett 1948), the Altiplano and Desert Traditions (Agüero et al. 1997; Berenguer et al. 1980; Uribe 1997; Uribe and Adán 1995), and the Algarrobo Culture Complex (Martínez 1998; see below) that are discussed below. All speak of the complex interconnections that characterized the social landscape of the southern Andes.

Bennett: Puna and Iruya Complexes

Bennett (1948: 26) argued for the existence of two regional complexes – Puna and Iruya – based on non-ceramic material culture attributes of sites from northwestern Argentina [Note 2]. Wooden artifacts associated with “llama herding, simple cultivation, hunting and warfare” characterize the Puna complex. These artifacts characterize the entire Atacama region, including gourds, wooden toggles and hoes, bows and arrows, hallucinogenic paraphernalia (tubes, tablets, containers and bags), coiled baskets, and copper metallurgy, and are found at sites in the San Juan Mayo, Miraflores, and Humahuaca River Valleys. The Iruya complex, less well defined, is characterized by stone implements for food cultivation/preparation, warfare, and by scarce ceramic material. Sites from this complex are located to the east of the Humahuaca Valley.

Castro, Berenguer and Aldunate: Desert and Altiplano Traditions

The Upper Río Loa was apparently occupied by Bolivian people during the Late Intermediate Period, who brought new ceramic vessels and vessel styles (i.e., Hedionda), and burial rituals in the form of chullpas (tall mortuary structures). Commonalities between southern Bolivia and the Loa Valley material assemblages led Castro and her colleagues (1979, 1984) to propose the existence of a Late Intermediate Period “altiplano cultural tradition” which combined Bolivian attributes (chullpas, Hedionda and Huruquilla ceramics) with local post-Tiwanaku ceramics and other Atacameño, desert, or Puna tradition material culture (i.e., the above mentioned wooden implements, coiled basketry, copper objects and hallucinogenic paraphernalia).

Agüero and Uribe: Late Intermediate Period Regional Complexes

Agüero and colleagues (Agüero 2000; Agüero et al. 1997; Uribe 1997; Uribe et al. 2004) have also revealed a remarkable coherence in the material culture of sites from the Late Intermediate Period in the Río Loa/San Pedro de Atacama region. This similarity is found in ceramic wares, textiles, wooden agricultural and textile manufacturing tools, baskets, gourd recipients, metal objects and mineral beads, and hallucinogenic paraphernalia. They argue for an Atacameño occupation of the Quillagua area between AD 900 and 1450, with a period of Tarapacá incursion during the Solor phase (ca. AD 1100–1300), which caused a re-entrenchment of Atacameño cultural attributes in opposition to this invasion. A San Pedro component (ca. AD 900–1200) was joined in a later period (ca. AD 1200–1400) by Loa materials, constituting a more general material assemblage shared by the San Pedro and Río Loa sub-areas and represented by similar variants of the same vessel types (i.e., San Pedro and Turi variants of painted ellipsoid jars).

The production of similar ceramic assemblages, then, suggests a cultural articulation of the Río Loa and San Pedro sub-areas, also potentially including the Argentine puna, certainly during the Late Intermediate Period. This relatively homogeneous Atacameño phenomenon is opposed to a Tarapacá regional social phenomenon including Pica and other north Chilean communities during the same period (Uribe 2006). Interestingly, the majority of these regional complexes are dated to the Late Intermediate Period (but see Sinclair et al. 2000 for the Middle Period), which is thought to have usually been characterized by the development of numerous discrete señoríos (chiefdoms). At any rate, the evident combination of material similarity with discrete ceramic differences defies traditional cultural models that picture the existence of mutually exclusive cultural categories in the past.

Martínez: El Complejo Cultural Algarrobo

In the sub region that includes San Pedro de Atacama we have a case where cultural attributes do not coincide entirely to create discrete socio-cultural entities. In addition, different material culture classes (and most likely other cultural attributes such as language) have different spatial distribution patterns, suggesting each had a different role in exchange relationships and identity representation locally and regionally (including those with no role at all). We have examined models to explain the exchange of non-local pieces and the presence of material similarities across large distances. The following models attempt to combine these two processes into one social system by proposing we consider the entire region as a single, multiethnic, cultural system.

Martínez (1990, 1996, 1998, 2000) has produced a series of fascinating papers on the historic period ethnic landscape of the south-central Andes based primarily on ethno-historic documents. Through these sources, Martínez has developed a complex picture of the construction of multiethnic spaces in the Atacama region between the sixteenth and eighteenth centuries. Evidence from parish documents and census records demonstrates that the entire region was cohabited by a number of discrete but interlinked communities (Figure 49.3). All groups appear to have followed similar economic and social strategies of non-local residence (including inter-ethnic marriages or use of godfathers [compadrazgo]). That is, members of each ethnic group resided for long periods in various locations across the region, intermarrying locally, yet continuing familial bonds, ethnic affiliation, and tribute obligations with home communities.

Martínez (1998) asserts that individual south-central Andean communities did not have a single economic mode or discrete territory, nor were they motivated by desires for self-sufficiency. These groups employed various combinations of vertical complementarity and caravan trade (Browman 1980, 1990a, 1990b; Núñez and Dillehay 1995; Martínez 1990), leading to regional interdependence and multiethnic cohabitation. He proposes that basic pan-regional cultural continuity, characterized by similar dispersed settlement patterns and multiple complementary economic strategies, constituted a single regional cultural entity: the Algarrobo Complex.

The general and key attributes of Martínez's south-central Algarrobo culture complex are:

- 1) *Redundancy*, where productive diversification served not the desire for exotic goods, but the need to ensure a reliable stock of key staples (1998:175).
- 2) *Simultaneity*, where groups maintained several economic strategies, key areas were exploited by several groups, and several groups engaged in the same productive strategies simultaneously (1998:173)
- 3) *Regional multi-ethnicity*, where ethnic identities were maintained over long distances and several generations within multicultural communities. This, perhaps, was necessary to ensure complementary relations between groups, a relationship rendered moot if they blended into one (1998:182–188).

Most interesting, Martínez (1998:186) reminds us that access to goods and resources occurred through people, and that the motivations for trade and exchange were not purely economic (see also Lazzari 1999; Pydyn 1999). Thus the human and social links forged between communities were more immediately important than the smooth functioning of balanced exchange and ecological diversification. Moreover, interaction, then, was



Figure 49.3. Principal ethnic groups participating in the Complejo Del Algarrobo. (Emily Stovel)

motivated more by social ties and relationships than by economic need. Herein lies the reason that social distinctions (reflected in persistent ceramic differences) are maintained in benign trade contexts. Interaction is not motivated in all cases by a latent competitive economic goal to ensure local self-sufficiency. Instead it reaches out to engage others and re-assert important social ties between differentiated communities (who often consume certain amounts of similar material culture). This is not to say, however, that subsistence issues were not also a concern. In short, different communities co-occupied a large area simultaneously, interacting with each other, yet maintaining communal ties across space and time *because when they traveled, they were not leaving home*. Not only was identity developed and reproduced because individuals maintained long-distance ties to the service of needs in their natal community for diverse resources and abundant staples, but also

because they were acting out internal cultural life on a larger stage. Thus non-local goods may not be exotic and may not even be non-local, but familiar and familial. Support for this proposition lies in identifying archaeological support for the Algarrobo cultural complex in prehistory.

Although Martínez makes use of data from archaeological excavation, all of the Algarrobo Complex patterns were discerned from ethnohistoric documents and may only be of colonial origin. Can Martínez's Algarrobo model be sustained archaeologically? The following section of this paper elaborates archaeological evidence for this model, which involves the existence of relationships between the same key areas throughout prehistory and the absence of important regional ceramic styles attesting to structuring within interaction patterns.

CERAMIC DIVERSITY IN SAN PEDRO DE ATACAMA

Approximately 350 non-local ceramic vessels have been recovered from 6,000 graves in the San Pedro area. These originate from 1,000 years of trade primarily with southwestern Bolivia and northwestern Argentina. Tarragó (1989) identifies 15 non-local ceramic styles from the Early Intermediate Period: Vaquerías and Condorhuasi (central northwestern Argentina), from the Middle Period: Tiwanaku, Isla, Chicha, Candelaria, Tupuraya, Mojocoya, and Lerma-Tarija, and from the Late Intermediate Period and Late Period: Huruquilla-Yura, Hedionda, Yavi-Tilcara, and Inca (from northwestern Argentina and highland Peru). I examined Tarragó's non-local collection in order to incorporate new information about ceramic styles and their distribution in southwest Bolivia (data from Angelo 1999; Arellano 2000; Fidel 1991; Céspedes and Lecoq 1998; Lecoq 1985, 1997, 1999; Lecoq and Céspedes 1995–1997, 1997a, b; Mamani 1998; Nielsen 1998, 2000; Nielsen et al. 1999).

San Pedro de Atacama's remarkable diversity in ceramic styles is found in both mortuary and habitation contexts from 900 BC (Chiu Chiu 200; see Benavente 1978, 1988–89; Tuli: see Llagostera and Barón 1984) to the pre-and colonial periods (Toconce, Quitor 6, Turi, Catarpe: see Castro et al. 1984), although it would appear that tombs are more diverse than residential contexts (Stovel 1997) [Note 3]. In the tombs specifically, researchers (Berenguer 1984; Costa and Llagostera 1994; Bravo and Llagostera 1986; Llagostera 1995; Núñez et al. 1975; Tarragó 1977, 1989) have documented the presence of:

- 1) Early influence from the San Francisco and Candelaria traditions of sub-tropical northeastern Argentina and vessels in Vaquerías, Ciénaga, Condorhuasi styles from northeastern and northwestern Argentina dating to 500 BC - AD 500.
- 2) Middle Period (AD 500–1000) Isla vessels and Aguada styles from northwestern Argentina, polychrome Tiwanaku vessels and local variants from Bolivia, various vessels from the southwestern Bolivian puna (i.e., Chicha from Lípez) and a few Cochabambino pieces (i.e., Mojocoya, Mizque).
- 3) Late Intermediate and Late Periods (AD 1000 – 1540) vessels such as Cuzco-Inca, with local and non-local variants (i.e., Inca-Paya from northwestern Argentina), and Yavi and Huruquilla/Yura pieces from the highland plateau between northern Argentina and southern Bolivia.

Here we have a general understanding of the stylistic and temporal range of non-local ceramic styles present in San Pedro graves. Through this, it is evident that trade and

Table 49.1. Non-local ceramic material in San Pedro de Atacama (Tarragó 1994).

Nonlocal Ceramic Style	Chronological Period	# Vessels
Central Northwestern Argentina*	Early	16
Chicha-Yavi	Early-Middle	34
Isla and related styles	Middle	6
Mizque-Yampara	Middle	1
Tupuraya	Middle	6
Mojocoya	Middle	1
Chuquisaca	Middle	2
Lerma-Tarija	Middle	1
NOA-Central	Middle	8
Altiplano	Middle-Late	7
Huruquilla-Yura	Late	10
Altiplano	Late	3
Yavi-Tilcara	Late	5
TOTAL		100

* Source: Tarragó 1994:20

exchange characterized the vast majority of San Pedro history. Tarragó (1994) summarized her analysis for a regional consideration of relative degrees of interaction (Table 49.1). This list furnished her postulation of various trade spheres in the South Central Andes. Although Tiwanaku and Inca evidence is not included here (they are considered in more depth in different parts in the Tarragó thesis), we can see that Middle Period ceramics predominate, and that the following regions represented foci of San Pedro trade and exchange (in descending order of importance) (Tarragó 1994: 202):

- 1) Puna and quebrada (valley) region (Jujuy, Sur Lípez and Tarija) during all periods.
- 2) Central altiplano and western slope of the tropical lowlands (Cochabamba, Oruro), during Middle to Later periods.
- 3) Northwestern Argentina (Quebrada de Humahuaca, La Quiaca), during the Middle period only.

Tarragó's ceramic analysis remains one of the most important documents in San Pedro archaeology both for its rigor and thoroughness. The derived list above requires revision, however, for several reasons. First, the definition of ceramic remains throughout the south-central Andes is a work-in-progress, requiring regular updates of current styles and their descriptions. Second, there is new debate concerning the temporal and spatial definition of some regional ceramic styles [Note 4]. Third, new ethnohistoric models of regional interaction call for a reconsideration of the archaeological evidence to explore their existence earlier in prehistory.

REVISION OF NON-LOCAL CERAMIC COLLECTIONS FROM SAN PEDRO DE ATACAMA

The following is a preliminary revision of the non-local ceramic collection from the R.P. Gustavo Le Paige S.J. Museum and Institute of Archaeological Investigation of the Northern Catholic University located in San Pedro de Atacama, 2nd Region, northern Chile.

Table 49.2. General categories of non-local ceramic types.

General Categories	# Types	# Vessels	% of non-local collection
Identified Styles	17	138	34.40%
Unidentified Styles	14	135	33.17%
Unusual Local Variants	2	67	16.46%
Llupta Jars	1 (7 sub-types)	65	15.97%
Unique	1 (all individual vessels)	28	6.88%

Non-local ceramics are clearly identifiable due to the contrast between the distinctive aesthetic of San Pedro wares and the decoration on non-local pieces but not all non-local styles are easily linked to a known ceramic style elsewhere (Table 49.2). There remains, despite recent surveys in the south-central Andes, considerable confusion and disagreement concerning the temporal and geographical placement of certain regional ceramic styles. This is, no doubt, the result of such regular and intense interaction and exchange throughout the region during the Middle, Late Intermediate and Late Periods (AD 500 – 1500). A detailed review of this literature is found in Stovel (2002). The most frequent known styles originate from the area between southern Bolivia and northern Argentina from the Middle Period (e.g., Isla, Tarija Bowls, Hornillos) or Late Intermediate Period (e.g., Yavi, LÍpez or Potosí styles, Hedionda, and Huruquilla/Yura). The unidentified category encompasses a wide range of different styles classified according to morphological or decorative attributes. Many most likely correspond to styles found in the Middle and Upper Loa Valley (e.g., ellipsoid jars; see Uribe 2002).

From this initial summary of approximately one-third of the total non-local collection (Table 49.3), it is clear that few objects arrived in the early period (although some of the unidentified styles may be early) and that contact occurred principally with north-western Argentina (Table 49.4). This is further confirmed by the presence of clay pipes in early San Pedro graves (Tarragó 1989:433), which also originate from northern Argentina (Dougerty 1977), as does the hallucinogenic material consumed within them (Berenguer 1998). Early trade in hallucinogenic materials with communities along the eastern slope of the Andes also explains how contact was established and maintained with this area.

San Pedro consumption of non-local ceramics subsequently increases in quantity and diversity during the Middle Period. Styles from the border area between Argentina and Bolivia (encompassing Jujuy and Tarija provinces) dominate (i.e., Tarija Bowls, Isla and Hornillos), though Tiwanaku vessels are also among the most numerous. At the tail end of the Middle Period, Cochabamba vessels are introduced, along with Huruquilla/Yura from central Bolivia (Potosí, Cinti Province). Non-local ceramic consumption during this period is diverse, focused on southern and central Bolivia, and extreme northern Argentina. Tiwanaku ceramic consumption remains high relative to other styles (Table 49.4).

In the Late Intermediate Period and Late Period, non-local ceramic diversity increases, including styles from the same three areas—southern and central Bolivia and northern Argentina—but incorporating more communities and Inca and Río Loa material.

The styles found in the San Pedro collection confirm the loci of San Pedro trade proposed by Tarragó (1994: 107–108): southern puna and valleys (including Tarija and Jujuy provinces in Bolivia and Argentina respectively), central altiplano (Potosí and Cochabamba in Bolivia), and northwestern Argentina. The popularity of styles from southern Bolivia and northwestern Argentina implies at this early stage that the colonial model presented

Table 49.3. Identified non-local ceramic types by frequency.

Ceramic Type	Counts
Yavi*	22
Isla	15
Bowls**	14
Lípez or Potosí	14
Tarija Bowls	14
Tiwanaku	14
Late Intermediate Period or Colonial	13
Red and Black Bowls	13
Black on Coral	12
One Handled Jars	10
Huruquilla/Yura	9
Large Smoothed Jars	9
Black on Red	8
Cochabambino	8
Smoothed Pitchers	8
Ellipsoide Jars	7
Hornillos	7
Black on Gray	6
Light Coral Thick-Walled	6
Lug Handle	6
Miniature Ellipsoide Bowls	6
Modeled	6
Striated Bowls	6
Black and White on Red	5
Inka	5
Vaqueras	5
Hedionda	3
CiEnaga/Candelaria	2
Asymmetrical Jars	2
Colla	2
Small Pots	2
Condorhuasi	1

* Bold implies identified styles with known regional and temporal affiliation.

** Unidentified styles were labeled according to surface treatment, shape attributes or temporal significance.

by Martínez (1998), linking San Pedro with Lípez, Chichas and Tucumán corregimientos, is borne out by ceramic evidence for the Middle Period and Late Intermediate Period (Table 49.5). The importance of these regions to San Pedro inhabitants appears therefore early on in the archaeological record. Tiwanaku ceramics are not excessively numerous and, despite the existence of an Inca administrative center in the valley during the Late Period, Inca ceramics are not numerous in Late Period San Pedro graves, suggesting that in both cases San Pedro inhabitants consumed some objects from powerful polities or states but did not adopt large quantities of material culture, nor change their traditional mortuary behaviour as a result.

Of course, we cannot systematically compare the quantities of types per period because this is too subject to the vagaries of classification and the quantity of knowledge available when the classification was done. We can however assert that there appears to

Table 49.4. Identified non-local ceramic types by period.

EARLY (0-400)	COUNTS	PROVENIENCE*
Condorhuasi	1	NOA
CiEnaga		
Candelaria	2	NOA
Modeled	6	NOA
MIDDLE (400-700)	COUNTS	PROVENIENCE
Isla	15	NOA
Tarija Bowls	14	SB
Tiwanaku	14	WB
Hornillos/Queta	7	NOA
Vaquerías	5	SB/NOA
MIDDLE/LATE (700-1200)	COUNTS	PROVENIENCE
Cochabambino	8	SEB
Huruquilla/Yura	9	SWB
LATE PERIOD (1100-1500)	COUNTS	PROVENIENCE
Yavi-Chicha	22	SB
Lípez or Potosí	14	SWB
1 Handled Jars	10	RL
Ellipsoid Jars	7	RL
Inca	5	Local
Hedionda	3	SB
Colla	2	SB

*NOA = northwestern Argentina
S(E/W)B = south (eastern/western) Bolivia
WB = western Bolivia
RL = Río Loa

Table 49.5. Identified non-local ceramic types by colonial province.

CORREGIMIENTO DE CHICHAS	CORREGIMIENTO DE LIPES	CORREGIMIENTO DE TUCUMÁN	OTHER AREAS
Yavi & Tarija Bowls Vaquerías	Lípez/Potosí Colla/Hedionda Huruquilla/Yura	Isla Hornillos	Inca Tiwanaku Cochabamba Condorhuasi

be a slight increase in the number of ceramic styles consumed through time, perhaps indicating the establishment and growth of llama caravan trade and the solidification of more intense trade relationships within this regional complex. In addition, however, there are a number of key styles that are absent from the collection, that may suggest certain communities were not engaged in the San Pedro social field, and may have participated in a neighboring sphere of interaction.

ABSENT STYLES

A fundamental part of the social field model presumes exchange is first and foremost a social act, demonstrated by recurrent relationships between specific regions and/or communities. This implies other areas would be excluded from long-term, predetermined relationships, such that the absence of key styles in the collection may reflect communities from whom San Pedro inhabitants chose not to consume ceramics. The absence of key regional styles supports the proposal of discrete trade webs. The following discussion is divided by region to highlight areas or communities within the usual ambit of San Pedro interaction.

Southwestern Bolivia and northern Chile

- a) Taltape (Dauelsberg 1984; Lecoq 1999)
- b) Ticatica (Lecoq 1999)

Northwestern Argentina

- a) Aguada (Berenguer 1984; González 1961, 1965; Llagostera 1995; Raffino 1988; Pérez and Herendia 1975, 1987)
- b) Santamariana (c. A.D. 1000 – 1550; Perrota and Podestá 1978)

The styles not represented in the San Pedro collection originate from northern Chile (i.e., Arica, Pica; Figure 49.1), west-central Bolivia, or central/southern northwestern Argentina; regions accessible and known to San Pedro inhabitants. The absence of these styles suggests they represented regions (and communities) with whom San Pedro inhabitants expressly did not exchange vessels. According to Martínez (1998), inhabitants of northern Chilean communities, including those within the Tarapacá region, did trade and reside in areas as far south as the Upper Rio Loa valley during the colonial period, but never engaged much with San Pedro people (except in Quillagua along the middle sector of the Rio Loa Valley; Agüero 1998; Agüero et al. 1997). This barrier suggests relationships were structured: oriented toward “known” friends or relatives as in a “social field” (see below; as described by Terrell 2001; Terrell and Welsh 1990; Welsch and Terrell 1998 *inter alia*).

REGIONAL AND CHRONOLOGICAL PATTERNS OF CONSUMPTION

The principal areas that prehistoric San Pedro de Atacama inhabitants interacted with are: the Atacama puna, southeastern Bolivia, Tiwanaku, and southern Northwestern Argentina. In fact, if we reorganize the principal ceramics into their colonial place of origin, we find that the same ceramic styles found most prominently in the San Pedro collection came from the same areas occupied by the other key participants in the Algarrobo Cultural Complex (Table 49.5). The focus of trade and exchange throughout prehistory (Figure 49.4) corresponds to the same areas delineated by Martínez (1998) for the colonial period: Lípez, Tarija, and Jujuy (Figure 49.3). In sum, there are three principal areas of exchange with San Pedro de Atacama:

- 1) The southern puna, including southern Tarija in Bolivia, and Jujuy and the Quebrada de Humahuaca in Argentina. Exchange with these areas appears to have occurred throughout the Middle, Late Intermediate and Late Periods.

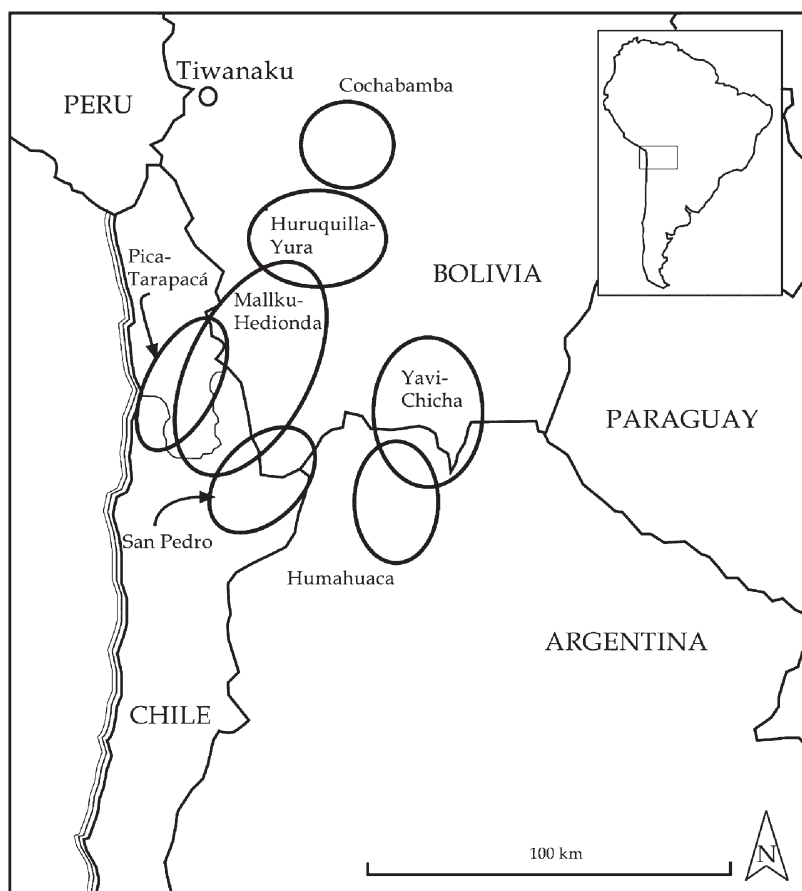


Figure 49.4. Principal non-local ceramic types identified in the San Pedro collection. (Emily Stovel)

- 2) South(western) Bolivia, including Uyuni, Potosí, López, Chuquisaca and Cochabamba (to a much reduced degree). This would have taken place from the end of the Middle Period to the Late Intermediate and Inca Periods. The focus of this interaction was not north, but south Potosí, though including the more central Yura-Huruquilla area.
- 3) Río Loa sub-area. This may have begun in the Middle Period (Sinclair et al. 2000), with the links becoming more obvious in the later periods. Some vessels from both areas (San Pedro and Río Loa) are very similar during later periods, suggesting their relationship was different.
- 4) Tiwanaku is the second most popular non-local ceramic style during the Middle Period, but is consumed in conjunction with several ceramic types from southern Bolivia and northwestern Argentina.
- 5) A fifth, but less important source of contact is the eastern edge of northwestern Argentina including the Lerma Valley in Salta (Black and White on Red) and the Taí Valley (La Candelaria) to the south.

These areas of interaction do not vary significantly from the sequence presented by Tarragó (1989, 1994), except for the inclusion of Río Loa and southern Bolivian data

produced in the last five years. These are also the vital places of mobility for Atacameños during the seventeenth century (Martínez 1998). The colonial model is not only borne out by archaeological data, but it would appear that these inter-regional relationships date to the Middle Period and may have taken precedence over the expansion of other groups, such as Tiwanaku. The corroboration of colonial models in prehistory is further supported by the selective consumption of certain styles from areas of such long-term importance.

All the non-local styles are consumed in low numbers, none surpassing 7% and most representing 1–3% of the entire non-local collection of approximately 400 pieces. These represent a tiny proportion of the entire prehistoric ceramic consumption in the area. It would appear that despite contact with a number of communities throughout the south-central Andes during 1,000 years (AD 500–1500), San Pedro inhabitants consumed only small amounts of non-local ceramics. These were consumed as part of local grave offerings and local burial ritual. *If the diversity is so low scale, we are confronted with material remains that seem to contradict archaeologists' elaborate trade models portraying San Pedro de Atacama as a key trade node and that situate llama caravanning at the heart of cultural historical developments.* It is also possible that ceramics did not play a pivotal role in economic exchanges, and may have reflected other types of relationships.

CONCLUSIONS

The data presented in this study confirm the existence of a regional culture complex in the south-central Andes:

Evidence 1: Non-local ceramic consumption (Figure 49.4) indicates long-term relationships between San Pedro inhabitants and the four key regions described by Martínez: Lípez, Chichas, Tarapacá, and northwestern Argentina (i.e., Tucumán) (Figure 49.3).

Evidence 2: The absence of key regional styles and the long-term popularity of specific regions (i.e., Yavi-Chichas and Humahuaca styles) show that these relationships were structured in predetermined and repeated ways. This suggests that interaction did not follow merely economic goals, but was subject to the long-term social relationships between specific communities.

Evidence 3: The presence of similar ceramic diversity in all sites of the south-central Andean region reveals that all communities participated in regional interaction, although there are important temporal differences within this diversity.

We can argue, then, that San Pedro de Atacama was integrated into and integral to a regional cultural system characterized by layers of material similarity and difference. Considering that we have little evidence of direct Tiwanaku impact on local San Pedro processes (Uribe and Agüero 2001, 2004; Torres-Rouff 2002), it would appear that the growth and development of this regional culture complex played a more fundamental role in San Pedro's culture history and warrants more consideration.

In other words, this regional cultural system seems to represent a more powerful source of material patterning in prehistoric San Pedro, with respect to non-local ceramic consumption in burials, than Tiwanaku, and thus should be dedicated more attention than the latter polity that has figured so prominently in the San Pedro archaeological literature. At least, the dynamic of Tiwanaku activities in the region should be cast against the important backdrop of a vibrant, long-term, integrated social system. Perhaps Tiwanaku polity representatives interacted with members of an Algarrobo cultural complex rather than with

individual communities. This would explain the more diffuse nature of Tiwanaku material distribution in the region (cf. Uribe and Aguero 2001, 2004).

This social entity resembles a social field, as outlined by Terrell and colleagues (Terrell 2001; Terrell and Welsch 1990; Welsch and Terrell 1998 *inter alia*; from Lesser 1961) for the case of the Sepik Coast in Papua New Guinea. There, scholars describe a social network characterized by varying levels of material and cultural similarity after many generations of close-knit trade and social relations. This shifting system characterized by multiple communities also holds a wide range of mutually unintelligible languages. The social field described by Terrell and others emphasizes the universal interdependence of communities and the ordinary, mundane character of interaction in most situations. In this environment, much like that of the Algarrobo cultural complex, social fields are:

- 1) Social networks, with some economic functions. Thus while goods are exchanged, this exchange serves to solidify social relations rather than social ties serving the acquisition of key subsistence goods.
- 2) A network of inherited friendships with no overarching political authority.
- 3) Multiethnic regional 'configurations' maintained without social, economic or political inequality (*contra* Comaroff 1985, 1996; Hodder 1979, 1982 and others).

The Algarrobo Complex resembles the Sepik Coast social field in its abundant long-term interaction, consumption of non-local staples rather than or in addition to exotic goods, structured but not spatially coinciding material similarities and differences among participating communities, its focus on kinship, rather than exclusively trade, relations, and its consideration of an entire region rather than a grouping of individual communities. Thus the result presented here helps flesh out scholarly understanding of a social entity that encapsulates community level political identities within a larger, regional culture. This model suggests that, in this context, ceramic style could function as a metaphor for place and family relationships. Graves may be a privileged place for expressing such links that are unnecessary in quotidian contexts.

Finally, this work poses the question: can non-local be local? The inclusion of non-locally manufactured pieces into San Pedro graves over millennia to varying degrees and for varying reasons, from regional communities of long-standing interaction, implies that such pieces are a necessary part of furnishing a grave for local inhabitants. These pieces may lack the expected cachet and exoticism of difference and distance and play an equal role in expressing belonging to that of local pieces. As such, modern scholars may be exaggerating the social value of non-local goods in graves, not the original inhabitants, as suggested by Stanish (1992; Aldenderfer and Stanish 1993). Of course, this is not applicable in all cases and more work is necessary in domestic San Pedro contexts to further explore this potential problem. Within the Algarrobo social field, however, capturing kinship relations with other communities was probably as necessary in death as idealizing various facets of one's local identity such as status, gender, occupation, and/or wealth.

ACKNOWLEDGMENTS My work in San Pedro de Atacama would have been impossible without the support of the Instituto de Investigaciones Arqueológicas y Museo R.P. Gustavo Le Paige S. J. de San Pedro de Atacama. There I was aided enormously by Lautaro Núñez and

Francisco Téllez, and my access to the collections was greatly facilitated by all the Museum staff for many years.

NOTES

1. A key recent book on the topic, Berenguer 2004, was inaccessible at the time of writing.
2. Scholars have recognized serious methodological (Rivolta 1997) and epistemological (Haber 2000) errors in Bennett's (1948) work.
3. There may also be a qualitative difference between houses and graves. Some Aguada ceramic fragments have been recovered from surface collections at residential sites (Berenguer 1984; Stovel 1997) but not from graves (although other possible Aguada material culture is known from graves).
4. Céspedes and Lecoq (1997, Lecoq 1999) have questioned the distinction between Yura and Huruquilla styles in southwestern Bolivia. For a different view, see Angelo (2000) who also relocated the center of diffusion of the north Chilean style, Taltape (Dauelsberg 1984), to southwestern Bolivia and relabeled it Taltape-Quillacas (Lecoq 1999).

REFERENCES

- Agüero, Carolina, 1998, Tradiciones textiles de Atacama y Tarapacá presentes en Quillagua durante el Período Intermedio Tardío. *Boletín del Comité Nacional de Conservación Textil* 3: 103–128.
- , 2000, Fragmentos para armar un territorio: la textilería en Atacama durante los Períodos Intermedio Tardío y Tardío. *Estudios Atacameños* 20: 7–28.
- , Mauricio Uribe, Patricia Ayala and Bárbara Cases, 1997, Variabilidad textil durante el período intermedio tardío en el Valle de Quillagua: una aproximación de la etnicidad. *Estudios Atacameños* 14: 263–290.
- Albeck, María Ester (ed.), 1994, *Taller "De Costa a Selva": Producción e Intercambio entre los Pueblos Agroalfareros de los Andes Centro Sur*. Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, Universidad de Buenos Aires.
- Aldenderfer, Mark S. (ed.), 1993, *Domestic Architecture, Ethnicity, and Complementarity in the South-Central Andes*. University of Iowa Press, Iowa City.
- and Charles Stanish, 1993, Domestic architecture, household archaeology, and the past in the south-central Andes. In *Domestic Architecture, Ethnicity, and Complementarity in the South-Central Andes*, edited by Mark S. Aldenderfer, pp. 1–12. University of Iowa Press, Iowa City.
- Aldunate, Carlos and Victoria Castro, 1981, *Las Chullpas de Toconce y su Relación con el Poblamiento Altiplanico en el Loa Superior, Período Tardío*. Ediciones Kultrun, Santiago.
- Alliende E., M., 1981, La Colección Arqueológica "Emil de Bruyne" de Caspana. Unpublished Licenciatura thesis. Facultad de Ciencias Sociales, University of Chile, Santiago Chile.
- Angelo, Dante, 1999, Tráfico de Bienes, Minería y Aprovechamiento de Recursos en la Región de los Valles del Sur Boliviano. Unpublished Licenciatura thesis. in Archaeology, Facultad de Ciencias Sociales, Universidad Mayor de San Andrés, La Paz, Bolivia.
- Arellano López, Jorge, 2000, *Arqueología de Lipes, Altiplano Sur de Bolivia*. Museo Jacinto Jijó y Caamaño, PUCE and Taraxacum, Quito, Ecuador and Washington D.C.
- Bawden, Garth, 2005, Ethnogenesis at Galindo, Peru. In *Us and Them: Archaeology and Ethnicity in the Andes*, edited by Richard M. Reycraft, pp. 12–33. Monograph 53, The Costen Institute of Archaeology, UCLA, Los Angeles.
- Benavente, María Antonia, 1978, Chiu Chiu 200: Poblado agroalfarero temprano. *Revista Chilena de Antropología* 1:5–15.
- , 1988–89, Nuevas evidencias arqueológicas acerca de los asentamientos tempranos en el Loa Medio. 46th International Congress of Americanists, Amsterdam, 1988. *Paleoetnología* 5:65–71.
- Bennett, Wendell C., 1948, Interrelations. In *Northwest Argentine Archaeology*, edited by Wendell C. Bennett, Everett F. Bleiler and Frank H. Sommer, pp. 140–149. Yale University Publications in Anthropology, No. 38. Yale University, New Haven.
- Berenguer, José, 1975, Aspectos Diferenciales de la Influencia de Tiwanaku en Chile. Unpublished Licenciatura thesis. Facultad de Ciencias Sociales, University of Chile, Santiago de Chile.
- , 1978, La problemática Tiwanaku en Chile: visión retrospectiva. *Revista Chilena de Antropología* 1: 17–40.

- _____, 1984, Hallazgos La Aguada en San Pedro de Atacama, norte de Chile. *Gaceta Arqueológica Andina* 12.
- _____, 1993, Gorros, identidad e interacción en el desierto chileno antes y después del colapso de Tiwanaku. In *Identidad y Prestigio en los Andes: Gorros, Turbantes y Diademas*, pp. 41–64. Museo Chileno de Arte Precolumbino, Santiago, Chile.
- _____, 1998, La iconografía del poder en Tiwanaku y su rol en la integración de zonas de frontera. *Boletín del Museo Chileno de Arte Precolumbino* 7: 19–37.
- _____, 2004, *Caravanas, Interacción y Cambio en el Desierto de Atacama*. Museo Chileno de Arte Precolumbino, Santiago, Chile.
- _____, Victoria Castro, and C. Silva, 1980, Reflexiones acerca de la presencia Tiwanaku en el norte de Chile. *Estudios Arqueológicos* 5: 81–93.
- _____ and Percy Dauelsberg, 1989, El Norte Grande en la órbita de Tiwanaku (400 a 1200 d. C.). In *Culturas de Chile: Prehistoria Desde Sus Orígenes Hasta los Albores de la Conquista*, edited by Jorge Hidalgo, et al., pp. 129–180. Editorial Andrés Bello, Santiago de Chile.
- Blom, Deborah, 1999, *Tiwanaku Regional Interaction and Social Identity: A Bioarchaeological Approach*. Ph.D. dissertation. Department of Anthropology, University of Chicago, Chicago.
- _____, Benedikt Hallgrímsson, Linda Keng, María C. Lozada and Jane E. Buikstra, 1998, Tiwanaku 'colonization': bioarchaeological implications for migration in the Moquegua Valley, Peru. *World Archaeology* 30 (2): 238–261.
- Bravo, Leandro and Agustín Llagostera, 1986, Solcor 3: un aporte al conocimiento de la cultura San Pedro. Período 500 al 900 d.C. *Chungará* 16–17: 323–332.
- Browman, David, 1980, Tiwanaku expansion and altiplano economic patterns. *Estudios Arqueológicos* 5: 107–120.
- _____, 1984, Tiwanaku: development of interzonal trade and economic expansion in the altiplano. In *Social and Economic Organization in the Prehistoric Andes*, edited by David Browman and Mario Rivera, pp. 117–142. Proceedings of the 44th International Congress of Americanists, Manchester, 1982. BAR International Series 194, Oxford.
- _____, 1990a, Camelid pastoralism in the Andes: llama caravan fleters and their importance. In *Nomads in a Changing World*, edited by Philip C. Salzman and John G. Galaty, pp. 395–438. Istituto Universitario Orientale, Naples.
- _____, 1990b, High altitude camelid pastoralism of the Andes. In *World of Pastoralism: Herding Systems in Comparative Perspective*, edited by John G. Galaty and Douglas L. Johnson, pp. 323–352. Guilford Press, New York.
- _____, 1996, South Andean federation and the origins of Tiwanaku. In *Debating Complexity*, Proceedings of the 26th Annual Conference of the Archaeological Association of the University of Calgary, Calgary, edited by D. A. Meyer, P.C. Dawson, and D. T. Hanna, pp. 607–613. University of Calgary, Calgary.
- _____, 1997, Political institutional factors contributing to the integration of the Tiwanaku state. In *Emergence and Change in Early Urban Societies*, edited by Linda Manzanilla, pp. 229–241. Plenum Press, New York.
- Castro, Victoria, José Berenguer, and Carlos Aldunate, 1979, Antecedentes de una interacción altiplano-área atacameña durante el período tardío: Toconce. *Actas del VII Congreso de Arqueología de Chile, Altos de Vilches, 1977*, pp. 477–498. Ediciones Kultrun, Santiago de Chile.
- _____, José Berenguer, and Carlos Aldunate, 1984, Orígenes altiplánicos de la fase Toconce. *Estudios Atacameños* 7: 209–235.
- _____, Carlos Aldunate, José Berenguer, Luis Cornejo, Carole Sinclair, Varinia Varela, 1994, Relaciones entre el noroeste argentino y el norte de Chile: el sitio 02-TU-002, Vegas de Turi. In *Taller "De Costa a Selva": Producción e Intercambio entre los Pueblos Agroalfareros de los Andes Centro Sur*, edited by María Ester Albeck, pp. 215–236. Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, Universidad de Buenos Aires.
- Céspedes, Ricardo and Patrice Lecoq, 1998, El horizonte medio en los andes meridionales de Bolivia (Potosí). In *Los Desarrollos Locales y Sus Territorios: Arqueología del NOA y Sur de Bolivia*, edited by Beatriz Cremonte, pp. 103–129. Universidad Nacional de Jujuy, Jujuy, Argentina.
- Comaroff, John L., 1985, Of totemism and ethnicity: consciousness, practice and the signs of inequality. *Ethnos* 52 (3–4): 301–323.
- _____, 1996, Ethnicity, nationalism, and the politics of difference in an age of revolution. In *The Politics of Difference: Ethnic Premises in a World of Power*, edited by Edwin N. Wilmsen and Patrick McAllister, pp. 162–184. The University of Chicago Press, Chicago.

- Costa, María A. and Agustín Llagostera, 1994, Coyo 3: Momentos finales del período medio en San Pedro de Atacama. *Estudios Atacameños* 11: 73–108.
- Dauelsberg, Percy, 1984, Taltape: definición de un tipo de cerámica. *Chungará* 12: 16–19.
- Dougherty, Bernardo, 1977, Análisis de la variación cerámica en el complejo San Francisco. *Obra del Centenario del Museo de la Plata*, pp. 237–252. Tomo II, Antropología. Universidad Nacional de la Plata, Facultad de Ciencias Naturales y Museo, La Plata.
- Fernández, Jorge, 1978, Los Chichas, los Lipés y un posible enclave de la cultura de San Pedro de Atacama en la Puna limítrofe argentino-boliviana. *Estudios Atacameños* 6: 19–35.
- Fidel, Sergio, 1993, Arqueología del Departamento de Potosí, Provincia Antonio Quijarro. In *Centenario de la Universidad Autónoma 'Tomás Frías', 1892–1992*, pp. 209–211. Ediciones Extensión Universitaria, Potosí.
- Gentile, Margarita, 1986, *El 'Control Vertical' en el Noroeste Argentino: Notas Sobre los Atacamas en el Valle Calchaquí*. Editor Casimiro Quirós, Buenos Aires.
- , 1988, Evidencias e hipótesis sobre los atacamas en la Puna de Jujuy y Quebrada de Humahuaca. *Journal de la Société des Americanists*, Series 2, 74: 87–104.
- González, Alberto Rex, 1961, The La Aguada Culture of northwestern Argentina. In *Essays in Precolumbian Art and Archaeology*, edited by Samuel K. Lothrop et al., pp. 389–420. Harvard University Press, Cambridge, MA.
- , 1965, La Cultura de la Aguada del N.O. Argentino. *Revista del Instituto de Antropología* II–III: 205–253. Córdoba, Argentina.
- Haber, Alejandro, 2000, La mula y la imaginación en la arqueología de la puna de Atacama: una mirada indiscreta al paisaje. In *Paisajes Culturales Sudamericanos: De las Prácticas Sociales a las Representaciones*, edited by Camila Gianotti García. *Traballos en Arqueología da Paisaxe* 19: 7–34.
- Hodder, Ian, 1979, Economic and social stress and material culture patterning. *American Antiquity* 44 (3): 446–454.
- , 1982, *Symbols in Action: Ethnoarchaeological Studies of Material Culture*. Cambridge University Press, Cambridge, U.K.
- Janusek, John W., 2002, Out of many, one: style and social boundaries in Tiwanaku. *Latin American Antiquity* 13 (1): 35–61.
- Korstanje, María Alejandra, 1998, ¿El Medano, es un sitio caravanero? Apuntes sobre contextos de tráfico y territorialidad para el formativo. In *Los Desarrollos Locales y Sus Territorios: Arqueología del NOA y Sur de Bolivia*, edited by Beatriz Cremona, pp. 33–61. Universidad Nacional de Jujuy, Jujuy, Argentina.
- Lazzari, Marisa, 1999, Distancia, espacio y negociaciones tensas: el intercambio de objetos en arqueología. In *Sed non Satiata: Teoría Social en la Arqueología Latinoamericana Contemporánea*, edited by Andrés Zarankin and Félix Acuto, pp. 117–152. Ediciones del Tridente, Buenos Aires.
- Lecoq, Patrice, 1985, Etnoarchéologie du salar d'Uyuni, 'sal et cultures régionales intersalar. *Bulletin de l'Institut Français d'Etudes Andines* 14 (1–2): 57–84.
- , 1997, Patrón de asentamiento, estilos cerámicos y grupos étnicos: el ejemplo de la región Intersalar en Bolivia. In *Saberes y Memorias en los Andes. In Memoriam Thierry Saignes*, pp. 59–89. CREDAL-IFEA, Paris, La Paz.
- , 1999, *Uyuni Préhispanique: Archéologie de la Cordillère Intersalar (Sud-Ouest Bolivien)*. Paris Monographs in American Archaeology 4. BAR International Series 798.
- and R. Céspedes, 1995–1997, Nuevas investigaciones arqueológicas en los Andes meridionales de Bolivia. *Revista de Investigaciones Históricas*: 183–267. División de Interacción Universitaria, Universidad Autónoma Tomás Frías, Potosí.
- and R. Céspedes, 1997a, Panorama archéologique des zones méridionales de Bolivie (sud-est de Potosí). *Bulletin de l'Institut Français d'Etudes Andines* 26 (1): 21–61.
- and R. Céspedes, 1997b, Proyecto arqueológico Potosí: Nuevos datos acerca de la ocupación prehispánica en el sur del departamento de Potosí. *Cuadernos de la Facultad de Humanidades y Ciencias Sociales* (Jujuy) 7: 111–152.
- Lesser, Alexander, 1961, Social fields and the evolution of society. *Southwestern Journal of Anthropology* 17: 40–48.
- Llagostera, Agustín, 1995, El componente cultural Aguada en San Pedro de Atacama. *Boletín del Museo Chileno de Arte Precolumbino* 6: 9–34.
- , 1996, San Pedro de Atacama: nodo de complementariedad reticular. In *La Integración Surandina: Cinco Siglos Después*, edited by Javier Albó et al., pp. 17–42. Centro de Estudios Andinos Bartolomé de las Casas, Corporación Norte Grande Taller de Estudios Andinos, Universidad Católica del Norte, Antofagasta.
- and Ana M. Barón, 1984, Investigaciones arqueológicas en Tulo-1. *Estudios Atacameños* 7: 133–151.

- MacEachern Scott, 2001, Setting the boundaries: linguistics, ethnicity, colonialism, and archaeology south of Lake Chad. In *Archaeology, Language and History: Essays on Culture and Ethnicity*, edited by John Terrell, pp. 79–101. Bergin & Garvey, Westport.
- , 1998, Scale, style and cultural variation: technological traditions in the northern Mandara mountains. In *The Archaeology of Social Boundaries*, edited by Miriam T. Stark, pp. 107–131. Smithsonian Institution, Washington.
- Mamani, Humberto, 1998, El paisaje arqueológico en el sector occidental de la cuenca de Pozuelos (Jujuy, Argentina). In *Las Sociedades Locales y Sus Territorios: Arqueología del NOA y Sur de Bolivia*, edited by Beatriz Cremonte, pp. 257–281. Universidad Nacional de Jujuy, Jujuy, Argentina.
- Martínez, José Luis, 1990, Interetnicidad y complementariedad en el altiplano meridional: el caso Atacameño. *Andes, Antropología e Historia* 1: 11–30.
- , 1996, Papeles distantes, palabras quebradas: las informaciones sobre Lipes en el siglo XVI. In *La Integración Surandina: Cinco Siglos Después*, edited by Javier Albó et al., pp. 229–257. Centro de Estudios Andinos Bartolomé de las Casas, Corporación Norte Grande Taller de Estudios Andinos, Universidad Católica del Norte, Antofagasta.
- , 1998, *Pueblos del Chañar y el Algarrobo: Los Atacameños en el Siglo XVII*. Colección de Antropología, DIBAM, Santiago de Chile.
- , 2000, Ayllus e identidades interdigitadas: las sociedades de la puna salada. In *Lógica Mestiza en América*, edited by Guillaume Boccara and Sylvia Galindo, pp. 85–112. Instituto de Estudios Indígenas, Universidad de la Frontera, Temuco.
- Murra, John V., 1972, El control vertical de un máximo de pisos ecológicos en la economía de las sociedades andinas. In *Visita de la Provincia de León de Huánuco en 1562*, vol. 2, Iñigo Ortiz de Zuñiga, pp. 427–476. Universidad Nacional Hermillo Valdizán, Huánuco.
- , 1975, El “control vertical” de un máximo de pisos ecológicos en la economía de las sociedades andinas. *Historia Andina* 3: 59–115.
- , 1985a, “El archipiélago vertical” revisited. In *Andean Ecology and Civilization*, edited by Shozo Masuda, Izumi Shimada, and Craig Morris, pp. 3–14. University of Tokyo Press, Tokyo.
- , 1985b, The limits and limitations of the “vertical archipelago” in the Andes. In *Andean Ecology and Civilization*, edited by Shozo Masuda, Izumi Shimada, and Craig Morris, pp. 15–20. University of Tokyo Press, Tokyo.
- Nielsen, Axel, 1998, Tendencias de larga duración en la ocupación humana del altiplano de Lipez (Potosí, Bolivia). In *Las Sociedades Locales y Sus Territorios: Arqueología del NOA y Sur de Bolivia*, edited by Beatriz Cremonte, pp. 65–99. Universidad Nacional de Jujuy, Jujuy, Argentina.
- , 2000, Aproximaciones arqueológicas y etnohistóricas a la diversidad cultural tardía en el altiplano de Lipez. In *Actas del XIV Congreso Nacional de Arqueología Chilena*, Copiapo, 1997. *Contribución Arqueológica* 5: 95–130.
- , 2001, Ethnoarchaeological perspectives in caravan trade in the south-central Andes. In *Ethnoarchaeology of Andean South America: Contributions to Archaeological Method and Theory*, edited by Lawrence A. Kuznar, pp. 163–201. International Monographs in Prehistory, Ethnoarchaeological Series 4, Ann Arbor.
- , 2004, Aproximación a la arqueología de la frontera tripartita Bolivia-Chile-Argentina. *Chungará* 36 (supl. Esp. 2): 861–878.
- , Maria M. Vásquez, Julio C. Avalos, Carlos I. Angiorama, P. A. Trenque, 1999, Prospecciones arqueológicas en la reserva ‘E. Avaroa’ (Sud Lipez, Dpto. Potosí, Bolivia). *Relaciones de la Sociedad Argentina de Antropología* 24: 95–124.
- Núñez Atencio, Lautaro, 1992, Ocupación arcaica en la puna de Atacama: secuencia, movilidad y cambios. In *Prehistoria Sudamericana: Nuevas Perspectivas*, edited by Betty Meggers, pp. 283–307. Taraxacum, Washington.
- , 1996, Movilidad caravánica en el área centro sur andina: reflexiones y expectativas. In *La Integración Surandina: Cinco Siglos Después*, edited by Javier Albó et al., pp. 43–62. Centro de Estudios Andinos Bartolomé de las Casas, Corporación Norte Grande Taller de Estudios Andinos, Universidad Católica del Norte, Antofagasta.
- and Tom D. Dillehay, 1995, *Movilidad Giratoria, Armonía Social y Desarrollo en los Andes Meridionales: Patrones de Tráfico e Interacción Económica*. Universidad Católica del Norte, Antofagasta.
- , Vjera Saltar, and Patricio Núñez H., 1975, Un circuito trashumantico entre la costa de pisagua y el borde occidental de la Pampa del Tamarugal. *Estudios Atacameños* 3: 49–52.
- Orellana, Mario, 1984, Influencias altiplánicas en San Pedro de Atacama. Primer Simposio de Arqueología Atacameña, San Pedro de Atacama, 1983. *Estudios Atacameños* 7: 197–208.

- Owen, Bruce, 1993, A Model of Multiethnicity: State Collapse, Competition, and Social Complexity from Tiwanaku to Chiribaya in the Osmore Valley, Perú. Ph.D. dissertation. Department of Anthropology, University of California, Los Angeles.
- Perez Gollán, José and Osvaldo Heredia, 1975, Investigaciones arqueológicas en el Departamento Ambato, Pcia. de Catamarca. *Relaciones de la Sociedad Argentina de Antropología*, IX. Buenos Aires.
- and Osvaldo Heredia, 1987, Hacia un replanteo de la cultura de La Aguada. *Cuadernos del Instituto Nacional de Antropología* n°12.
- Perrota, Elena and Clara Podestá, 1978, Contribution to the San Juan and Santa María Cultures, NW Argentina. In *Advances in Andean Archaeology*, edited by David L. Browman, pp. 525–552. Mouton Publishers, The Hague.
- Pydyn, Andrej, 1999, *Exchange and Cultural Interactions: A Study of Long-Distance Trade and Cross-Cultural Contacts in the Late Bronze Age and Early Iron Age in Central and Eastern Europe*. Archaeopress, Oxford.
- Raffino, Rodolfo, 1988, *Poblaciones Indígenas en Argentina, Urbanismo y Proceso Social Precolombino*. Tipográfico Editora Argentina, Buenos Aires.
- Reyrcraft, Richard M. (ed.), 2005, *Us and Them: Archaeology and Ethnicity in the Andes*. Monograph 53, The Costen Institute of Archaeology, UCLA, Los Angeles.
- Rivolta, María Clara, 1997, Revisión crítica de la obra de Bennett y colaboradores sobre la definición y asigna cronológica de algunos estilos cerámicos de la Quebrada de Humahuaca. *Avances en Arqueología* 3: 131–145.
- Rodman, Amy Oakland, 1992, Textiles and ethnicity: Tiwanaku in San Pedro de Atacama, north Chile. *Latin American Antiquity* 3 (4): 316–340.
- Rostworowski de Diez Canseco, María, 1977, *Etnia y Sociedad: Costa Peruana Prehispánica*. Instituto de Estudios Peruanos, Lima.
- Scattolín, M. Cristina and Marisa Lazzari, 1997, Tramando redes: obsidianas al oeste del Aconquija. *Estudios Atacameños* 14: 189–209.
- Serrancino, George, 1980, Tiwanaku desde San Pedro de Atacama. *Estudios Arqueológicos* (5): 95–106.
- Shimada, Izumi, 1982, Horizontal archipelago and coast-highland interaction in north Peru: archaeological models. *Senri Ethnological Studies* 10: 137–210.
- Sinclair, Carole, Mauricio Uribe, Patricia Ayala, and J. González, 2000, La alfarería del período formativo en la región del Loa superior: sistematización y tipología. Actas del XV Congreso Nacional de Arqueología Chilena, Copiapo, 1997. *Contribución Arqueológica* 5: 285–314. Museo Regional de Atacama, Chile.
- Stanish, Charles, 1989a, An archaeological evaluation of an ethnohistorical model. In *Ecology, Settlement and History in the Osmore Drainage, Peru*, edited by Don S. Rice, Charles Stanish, and Philip R. Scan, pp. 303–320. British Archaeological Reports. BAR International Series, Vol. 545 (2). Oxford.
- , 1989b, Household archaeology: testing models of zonal complementarity in the south central Andes. *American Anthropologist* 91 (1): 7–24.
- , 1992, *Ancient Andean Political Economy*. University of Texas Press, Austin.
- , 1994, Hydraulic hypothesis revisited: Lake Titicaca basin raised fields in theoretical perspective. *Latin American Antiquity* 5 (4): 312–332.
- , 2005, Migration, colonies, and ethnicity in the south-central Andes. In *Us and Them: Archaeology and Ethnicity in the Andes*, edited by Richard M. Reyrcraft, pp. 226–232. Monograph 53, The Costen Institute of Archaeology, UCLA, Los Angeles.
- Stark, Miriam (ed.), 1998, *The Archaeology of Social Boundaries*. Smithsonian Institution, Washington D.C.
- Stovel, Emily M., 1997, Habitational Analysis and Cultural Contact at Coyo Aldea, Northern Chile: The Surface Deposits. M.A. thesis. Department of Anthropology, Binghamton University (SUNY), Binghamton, NY.
- , 2002, The Importance of Being Atacameño: Political Identity and Mortuary Ceramics in Northern Chile. Ph.D. dissertation. Department of Anthropology, Binghamton University (SUNY), Binghamton, NY.
- Sutter, Richard, 2005, A bioarchaeological assessment of prehistoric ethnicity among early Late Intermediate populations in the Azapa Valley, Chile. In *Us and Them: Archaeology and Ethnicity in the Andes*, edited by Richard M. Reyrcraft, pp. 183–205. Monograph 53, The Costen Institute of Archaeology, UCLA, Los Angeles.
- Tarragó, Myriam, 1976, Alfarería típica de San Pedro de Atacama. *Estudios Atacameños* 4: 37–64.
- , 1977, Relaciones prehispánicas entre San Pedro de Atacama (Norte de Chile) y regiones aldeanas: la Quebrada de Humahuaca. *Estudios Atacameños* 5: 50–60.
- , 1989, Contribución al conocimiento arqueológico de las poblaciones de los oasis de San Pedro de Atacama en relación con los otros pueblos puneños, en especial, el sector septentrional del valle Calchaquí. Ph.D. dissertation. Universidad de Rosario, Rosario, Argentina.

- _____, 1994, Intercambio entre Atacama y el borde de Puna. In *Taller 'De Costa a Selva': Producción e Intercambio entre los Pueblos Agroalfareros de los Andes Centro Sur*, edited by María Ester Albeck, pp. 199–209. Instituto Interdisciplinario Tilcara, Facultad de Filosofía y Letras, Universidad de Buenos Aires.
- Tartusi, Marta and Víctor Núñez R., 1995, Relaciones entre el noroeste Argentino y Chile durante los períodos formativos y medios. *Actas del XII Congreso Nacional de Arqueología Chilena*, 1994., *Hombre y Desierto* 4: 147–157.
- Terrell, John, 2001, Ethnolinguistic groups, language, boundaries and culture history: a sociolinguistic model. In *Archaeology, Language and History: Essays on Culture and Ethnicity*, edited by John Terrell, pp. 199–221. Bergin & Garvey, Westport.
- _____, and Robert L. Welsch, 1990, Trade, networks, areal integration, and diversity along the north coast of New Guinea. *Asian Perspectives* 29 (2): 155–165.
- Torres, Constantino M. and William Conklin, 1995, Exploring the San Pedro de Atacama/Tiwanaku relationship. In *Andean Art: Visual Expression and its Relation to Andean Beliefs and Values*, edited by Penny Dransart, pp. 78–108. Avebury, Aldershot.
- Torres-Rouff, Christina, 2002, Cranial vault modification and ethnicity in Middle Horizon San Pedro de Atacama, Chile. *Current Anthropology* 43: 163–171.
- Uribe, Mauricio, 1997, La alfarería de Caspana en relación a la prehistoria tardía de la subárea circumpuneña. *Estudios Atacameños* 14: 243–262.
- _____, 2002, Sobre alfarería, cementerios, fases y procesos durante la prehistoria desierto de Atacama (800–1600 DC). *Estudios Atacameños* 22: 7–31.
- _____, 2006, Acerca de complejidad, desigualdad social y el complejo cultural Pica-Tarapacá en los Andes Centro-Sur (1000–1450 DC). *Estudios Atacameños* 31: 91–114.
- _____, and Leonor Adán, 1995, Tiempo y espacio en Atacama: la mirada desde Caspana. *Boletín de la Sociedad Chilena de Arqueología* 21.
- _____, Leonor Adán, and Carolina Agüero, 2004, Arqueología de los períodos Intermedio Tardío y Tardío de San Pedro de Atacama y su relación con la cuenca del Río Loa. *Chungará* 36 (supl. esp. 2): 943–956.
- _____, and Carolina Agüero, 2001, Alfarería, textiles y la integración del Norte Grande de Chile a Tiwanaku. *Boletín de Arqueología PUCP* 5: 397–426. Pontificia Universidad Católica del Perú, Lima.
- _____, and Carolina Agüero, 2004, Iconografía, alfarería y textilería Tiwanaku: elementos para una revisión del Período Medio en el Norte Grande de Chile. *Chungará* 36 (supl. esp. 2): 1055–1068.
- Van Buren, Mary, 1996, Rethinking the vertical archipelago: ethnicity, exchange, and history in the south central Andes. *American Anthropologist* 98 (2): 338–351.
- _____, 1997, Continuity or change?: Vertical archipelagos in southern Peru during the early Colonial Period. In *Approaches to the Historical Archaeology of Mexico, Central and South America*, edited by Janine Gasco, Greg C. Smith, Patricia Fournier-García, pp. 155–164. The Institute of Archaeology, University of California, Los Angeles.
- Welsch, Robert L. and John Terrell, 1998, Material culture, social fields, and social boundaries on the Sepik coast of New Guinea. In *The Archaeology of Social Boundaries*, edited by Miriam T. Stark, pp. 50–77. Smithsonian Institution Press, Washington, D.C.
- Zlatar, Vjera, 1984, *Cementerio Pica 8*. Facultad de Educación y Ciencias Humanas, Instituto de Investigaciones Arqueológicas y Restauración Monumental, Universidad de Antofagasta.

Prehistoric Funeral Practices in the Brazilian Amazon: The Maracá Urns

VERA GUAPINDAIA

INTRODUCTION

Maracá funerary urns have been a show-piece for Amazonian archaeology since the end of the nineteenth century when exploration of the Maracá River region of Brazil began. Publications and exhibitions on Amazonian prehistory almost always refer to Maracá and present images of the mysterious anthropomorphic urns, which are as famous as Marajoara and Santarem pottery. Although images of the urns became familiar, it is less than a decade since archaeological research produced the first data on the funerary patterns of Maracá society and placed it within a cultural temporal context in the Amazon region. In the context of Amazonian archaeology, Maracá, along with Marajó, Aruã, Aristé, and Mazagão, is an example of the mosaic of cultural diversity that proliferated in the lower Amazon before Europeans occupied the region in the seventeenth century (see Chapters 19 and 47 in this volume).

ARCHAEOLOGY OF THE MARACÁ REGION: A BRIEF HISTORY

The archaeological sites in the Maracá River Region in southern Amapá (the Brazilian state that borders French Guiana) have been known since 1872 when the explorer and naturalist Domingos Soares Ferreira Penna (1877) visited and wrote about them. That same year, geologist Charles Hartt published a note in the magazine *The American Naturalist* about an anthropomorphic urn that was shown to him by Ferreira Penna (Hartt 1872). Most

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

of the urns collected by Penna are in the National Museum in Rio de Janeiro where they were sent more than a century ago for the exhibition of Brazilian Anthropology in 1882; then they were incorporated into the collections of National Museum.

A general survey of the region was carried out in 1896 by Army Colonel Aureliano Lima Guedes who was the assistant to Swiss zoologist Emílio Goeldi, then director of the Pará Museum in Belem. His survey covered the areas around the Maracá and Anauerapucu Rivers and their tributaries. On the Igarapé do Lago, a tributary of the Maracá River, Lima Guedes located three sites which he called "indigenous mortuaries" due to the presence of funerary urns. On one of the urns he found white and blue glass beads that were glued with resin to the back and around the arm, forming a sort of bracelet. The glass beads suggested to him contact between the Amerindians and the first Europeans to enter the region (Guedes 1897).

Almost twenty years later, in 1915, the German ethnologist Curt Nimuendaju made a journey from the Jari River, in the extreme south of Amapá, to the Maracá River. On the way he found five archaeological sites in areas of terra preta containing ceramic and lithic artifacts. He considered the possibility that the sites had not been abandoned very long because of the still regenerating forests he found there. It is known that he made a small surface collection of ceramic fragments (Nimuendaju 1927; Meggers and Evans 1957), but considering Nimuendaju's activities as a collector for foreign and national museums at the beginning of the century and his relations with Erland Nordenskiöld, it is likely that he collected more in the Maracá region. An urn in the Ethnographic Museum of Oslo is illustrated by Nordenskiöld in the book *Ars Americana* (Nordenskiöld 1930) and was probably a result of Nimuendaju's collecting activities during his exploration of Amapá in 1915.

The next year, 1916, William Farabee, an anthropologist from the University of Pennsylvania, carried out research 13 km north of the Amazon River near its mouth (the approximate location of the Maracá River) and also at Ilha dos Porcos and Ilha do Pará, islands that lie between the coast of Amapá and the Marajó archipelago. In the area north of the Amazon River, Farabee found anthropomorphic and zoomorphic urns similar to those documented by Ferreira Penna and Lima Guedes. One of anthropomorphic urns illustrated by Farabee (1921: fig. 44) is generally similar to Maracá's urns except that the arms, hands, legs and feet are more naturalistic.

The anthropomorphic urns seemed too small to hold bones so Farabee inferred that they were used to hold ashes. He also believed that the burials were not very old, given the association with glass beads. On Ilha dos Porcos he found habitation sites but no burials, while on Ilha do Pará he found many zoomorphic urns. The urns were on the surface placed side by side in groups of two to twelve (Farabee 1921).

Up to that time, information on the archaeology of Amazonia came from collections made by naturalists in the second half of the nineteenth century and by anthropologists in the first half of the twentieth century. In view of these increasing collections, discussions over their origins promoted the first attempts at a synthesis of Amazonian archaeology (Neves 1999, 2000), in which constant references were made to the Maracá urns (Hartt 1885; Netto 1885; Nordenskiöld 1930; Costa 1934).

In 1948, archaeologists Betty Meggers and Clifford Evans, of the Smithsonian Institution, undertook investigations the mouth of the Amazon covering Marajó, Mexiana, and Caviana Islands and part of the then Federal Territory of Amapá (Meggers and Evans 1957). They did not visit the region of Igarapé do Lago but analyzed material from the Emílio Goeldi Museum collected by Guedes as well as material at the University of Pennsylvania collected by Farabee. Meggers and Evans concluded that the ceramic cultures defined by them in Amapá (Mazagão, Aristé, and Aruã) were late, arriving in the area

shortly before the Europeans. They proposed that the Maracá occupation were geographically limited to the region of Igarapé do Lago and extending less intensively toward Ihla do Pará, although they considered their hypotheses preliminary since they had not examined the ceramic material on site. The Maracá occupation would have been contemporaneous with the last Mazagão phase which exhibited some Maracá influence as indicated by the style of the urns (Meggers and Evans 1957).

Around 1953, archaeologist Peter Hilbert visited the Maracá River region where he found a site with rock painting, but his results were never published (Barreto 1992).

In 1972, Mário Simões, an archaeologist from the Emílio Goeldi Museum, classified the urns collected by Ferreira Penna and Lima Guedes as Maracá Phase. However, he considered Maracá a floating phase since its characteristics did not fit into any of the ceramic traditions established for Amazonia (Simões 1972).

More recently, archaeologist Klaus Hilbert coordinated a project whose goal was to search for pre-ceramic sites in the region around Maracá. In a rock shelter known as Buracão do Laranjal near one of the streams that forms Igarapé do Lago, a small excavation uncovered lithic artifacts and the remains of a fire hearth radiocarbon dated to 3750 ± 110 BP (Beta 30746). Red paintings were found on the walls of the shelter. In addition to the pre-ceramic site, eight ceramic-bearing sites were located, registered, and collected along the Maracá River and Igarapé do Lago (Hilbert and Barreto 1988; Barreto 1992).

In 1994, a project was begun by the Emílio Goeldi Museum to investigate the prehistory of the Igarapé do Lago region. Although the archaeological potential of the area has been known since the nineteenth century, systematic investigation was lacking. Virtually all of the archaeological information and collections were undocumented and without proveniences. In this paper I present the results of research conducted between 1996 and 2002; actual fieldwork was completed in 1999.

THE MARACÁ TERRITORY

The principal river of the region is the Maracá, a small northern affluent of the Amazon River that is located near its mouth. Igarapé do Lago is one of its largest affluents and empties into the Maracá from its left margin along the middle stretch of the river. During the rainy season from December to May the river floods the flat plains in the region forming a large lake, giving the river its name Igarapé do Lago, which means “Stream of the Lake” in Portuguese. The floodplain contains large areas of wild rice (*Oriza* sp.) along with other plants typical of flooded areas. The level of the lake falls at the end of the rainy season but does not dry up completely. The Igarapé do Lago is located in higher terrain than the Maracá River and its waters are clean and free of sediment with the dark stained color of a black water river. During the rainy season the river level is high enough for navigation by riverboat. The extensive floodplain, with areas both seasonally and permanently flooded, was formed by Holocene alluvium with natural canals, streams, and lakes. To the north and south of Igarapé do Lago are valleys and ravines free from flooding. To the west, outcrops of sedimentary rocks contain rock shelters and caves (RADAM 1974) (Figure 50.1).

The vegetation around Igarapé do Lago is classified as dense rainforest, a rich and varied vegetation group that forms in areas of Quaternary alluvium, both flooded and non-flooded. In flooded areas, wild rice (*Oriza* sp.), buriti (*Mauritia flexuosa*), and small aquatic plants predominate. In non-flooded areas known as terra firme there is an abundance of large trees such as the Brazil nut (*Bertholletia excelsa*), whose harvest is a basis of the local

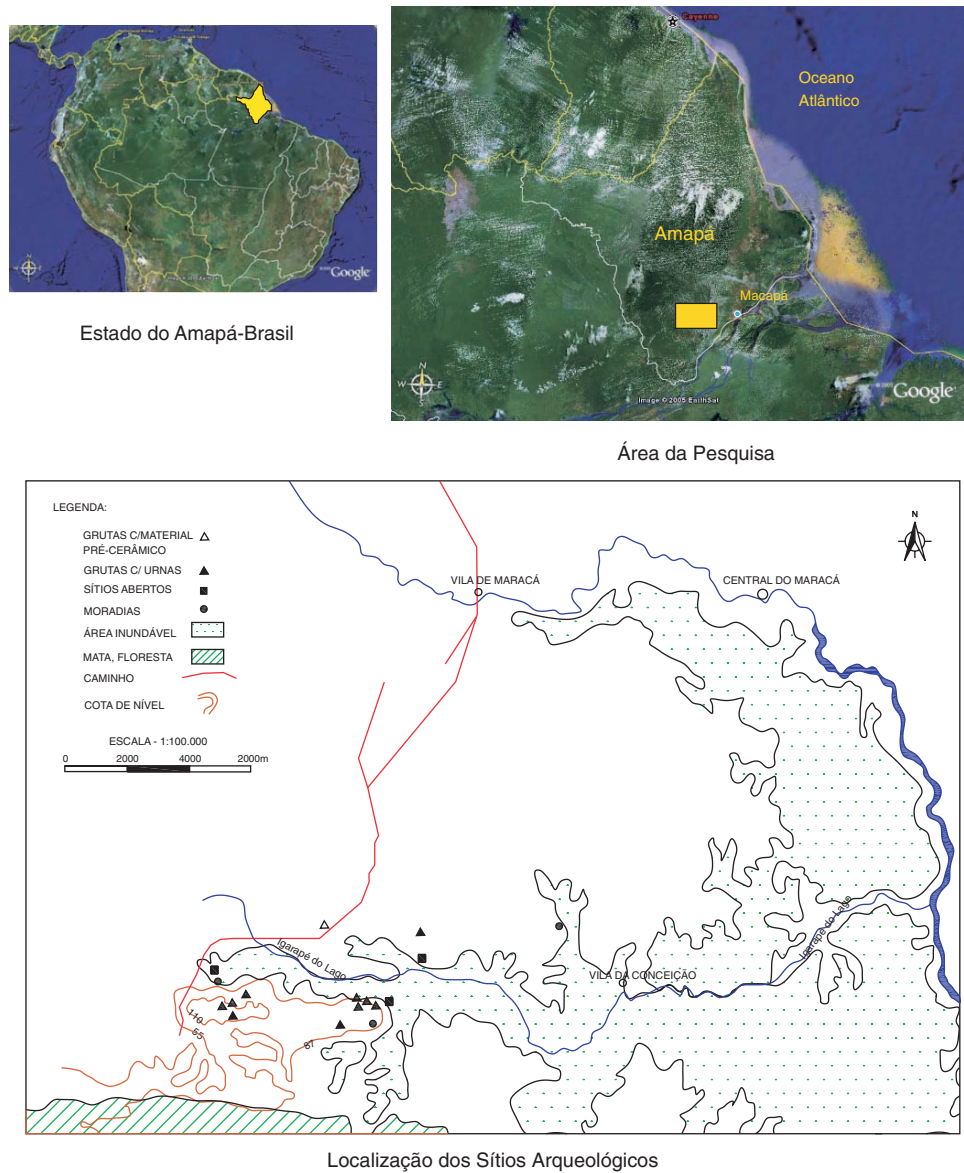


Figure 50.1. Map of the study area showing archaeological sites. (Vera Guapindaia)

economy. There are also Itauba (*Mezelaureus itauba*), Acapu (*Vouacapoua americana*), Sapucaia (*Lecythes psionis*), Louro (*Laurus mobilis*), and Pau-mulato (*Callycophyllum spruceanum*). The current residents cultivate manioc (*Manihot esculenta*), bananas (*Musa* sp.), oranges (*Citrus sinensis*), and lemons (*Citrus aurantifolia*). On the lateritic plateau, the vegetation changes to “canga,” composed of thorny, thin-trunked trees.

The local terrestrial and aquatic fauna are abundant and varied providing an important food source for the local population. Mammals common to the area include jaguars (*Panthera onça*), deer (*Mazama Americana*), peccary (*Tayassu tajacu*), agouti (*Cunilus paca*), coati (*Nasua nasua*), cutia (*Dsyprocta III*), tapir (*Tapyrus terrestris*) and monkey (*Cebus erxeben*, *Saimiri sciurens*, *Midas ursulus*). There are also a large variety of reptiles

and birds including garças (*Leucophyx thula*), eagles (*Ruporis magnirostris*), tucans (*Ramphatos itellinus*), parrots (*Ara macao*), and parakeets (*Tiririca chiriri*), among others.

The project study area includes the Serra do Laranjal and the headwater region of Igarapé do Lago (Figure 50.1). The Serra do Laranjal is a rocky outcropping of iron-rich sandstone approximately 21 km² in extent and attaining a height of between 87 and 110 m, containing caves and rock shelters of various sizes. Thirteen cemetery sites were recorded (Lapa do Pocinho, Gruta do Pocinho, Gruta do Periquito, Gruta das Caretas, Abrigo das Caretas, Lapa das Caretas, Gruta do Cururu, Gruta das Formigas, Gruta da Caba, Gruta do Baiuna, Gruta do Jaboti, Gruta do Carrapato, Gruta do Veado) and 3 habitation sites were recorded (Bananal do Pocinho, Roça do Antônio, Terra Preta da Conceição). The proportion of 13 cemetery sites to 3 habitation sites should not be considered statistically significant since the survey for habitation sites was less intensive than for cemetery sites. In addition to the 3 habitation sites recorded by the Maracá project, 6 others with similar characteristics were recorded by Hilbert and Barreto (1988) throughout the Igarapé do Lago, below my research area. The presence of 16 sites in an area of approximately 32 km² confirms its importance for archaeological research. A more intensive survey along Igarapé do Lago and the Maracá River would certainly increase the number of habitation sites in the area.

HABITATION SITES AND CEMETERIES

The habitation sites are located near the banks of the Igarapé do Lago in areas of terra firme with the cave sites located at higher elevations at some distance. Two of the habitation sites are between 800 m and 1 km distant from the caves and one is about 3 km distant from the caves. The distribution of sites on the landscape is a function of the topography and proximity to water sources. The habitation sites are located near water sources while the cemeteries are located in areas more distant.

The habitation sites registered so far in the Maracá region can be characterized as open areas with terra preta soil (anthrosols) located on terra firme between 20 and 500 m from the bank of the Igarapé do Lago. They are distributed along both sides of the river at distances of between 2 and 6 km from one another. The local population presently use these areas for raising crops or cattle. The sites typically parallel the river, ranging from 16 m up to 200 m in length. The terra preta, where cultural remains are found, is up to 60 cm deep. Abundant fragments of ceramic vessels and polished stone tools occur on the surface (Figures 50.2, 50.3).

Analysis of ceramics from one small excavation at one of the sites provides some basic characteristics. Ceramic objects are generally small to medium sized vessels most likely for domestic use such as cooking, serving, or storing food. There are also griddles probably for cooking beiju (tortillas made from manioc) that measure from 25 to 40 cm in diameter. Vessels were made by coiling and were tempered with crushed rock, sometimes with additions of tree bark, charcoal, or grog. Modeling was used for details like handles or decorative appliqué. Most of the vessels were without surface decoration except polishing. When present, decoration included red and white painting, incisions, and unctuation. Incised decoration is generally located on the rim, and consists of parallel lines or triangular motifs.

A carbonized seed from 30–35 cm depth in an excavation unit returned a date of 360±40 BP (Beta 142117; AD 1445–1645, 2 Sigma range).

The cemetery sites are located in higher areas in the Serra do Laranjal, 800 m to 1.5 km from open habitation sites. They are in closed areas or caves (Figure 50.4), with ceramic urns on the surface containing secondary burials (Figure 50.5).



Figure 50.2. Vessel rim fragment with fine and broad line incisions showing a geometric design and an anthropomorphic figure, from the Bananal do Pocinho habitation site. (photo by Janduari Simões)



Figure 50.3. Ceramic and lithic material on the surface at the Bananal do Pocinho habitation site. (photo by Janduari Simões)



Figure 50.4. Entrance to the cave, Gruta das Caretas. (photo by Janduari Simões)



Figure 50.5. View of the interior of Gruta das Caretas, during excavation, with ceramic urns. (photo by Janduari Simões)

Urns were deposited in both caves and rock shelters, ranging from 80 cm to 2.5 m high, 4.7 m to 16 m deep and 3.3 m to 21 m wide, apparently suggesting no particular preference for the size of the places.

The environment inside the caves is humid with cracks in the walls oozing water. Some have openings in the ceiling where quantities of leaves, fruit, and rainwater enter, covering the floor. The surface soil on the cave floors is clayey, dark, and humid. Signs of activity from mammals, birds, reptiles and insects are common. The results of insect activity can be seen in the soil, on the cave walls, and even inside the urns. Termite nests are frequent, sometimes filling an entire urn and completely destroying the bones.

THE FUNERARY URNS: ATTRIBUTES OF ETERNITY

There are basically two types of funerary urns: anthropomorphic, representing a human figure seated erect on a bench, and zoomorphic, representing a quadruped animal standing upright. Among the urns collected by Guedes in 1896 are some that represent neither human figures nor animals. They are cylindrical urns with a lid in the form of a disk. The cylindrical form and manufacturing techniques are the same as the body of the anthropomorphic urns and the lid is similar to the lid on the zoomorphic urns (Figure 50.6).

Anthropomorphic urns are the most frequent. They range in height from 20 to 85 cm. They have three distinct parts: the head (lid), the body (container that holds the bones), and the bench (base) (Figure 50.7).

The head corresponds to the lid, which is removable and takes the form of a flat-topped cone terminating in a clay disk (Figure 50.8). Head lids are almost always decorated with high relief or incisions and sometimes have small orifices. Besides these decorations, some lids have a modeled appliqué “T” attached to their posterior. The height of heads or lids varies from 9 to 22 cm. The diameter of the tops ranges from 6 to 16 cm, while the bottoms vary from 9 to 27 cm in diameter.

The face on anthropomorphic head lids is well defined displaying eyebrows, eyes, mouth, and nose. Clay fillets are applied to the sides of the lid to define the face and back of the head. The fillets outlining the face usually connect with the appliqué forming the nose; eyebrows, eyes, and mouth are represented by additional fillets. An incision separating the upper and lower lips forms the mouth. Teeth may be represented by incisions. In most cases eyes are rectangular, and only rarely represented as circular. Although ears are not clearly depicted, two lids have orifices on both sides in the fillets defining the edge of the face. Besides plastic decoration of the surface, some lids are painted with white, black, and yellow. On three lids, an appliqué on the lower front may represent a protruding chin or an adornment.

At the bottom of the lid, where it rests on the body, small orifices circle it at regular intervals. Similar orifices are found on the rim of the body where the lid rests and remains of resin are commonly found on this surface. The resin could have been used as a sealant, combined with the orifices through which a cord was probably passed, firmly tying the two together.

Urn bodies take the form of a cylinder that is attached to the top of the bench. Height varies from 11 to 54 cm and diameter from 12 to 26 cm. Nipples, navel, and sexual organs are represented on the lower part and the proportion of male to female urns is almost equal in the caves investigated. Bodies always have a vertical appliqué with broad-line incisions on the back, probably representing vertebra. Small fillets are applied to the sides of the body close to the arms and the legs. Some also have a fillet circling the body at waist height and another in the form of a U on the chest. Painting in black, white, red, and yellow may appear along with the plastic decoration.

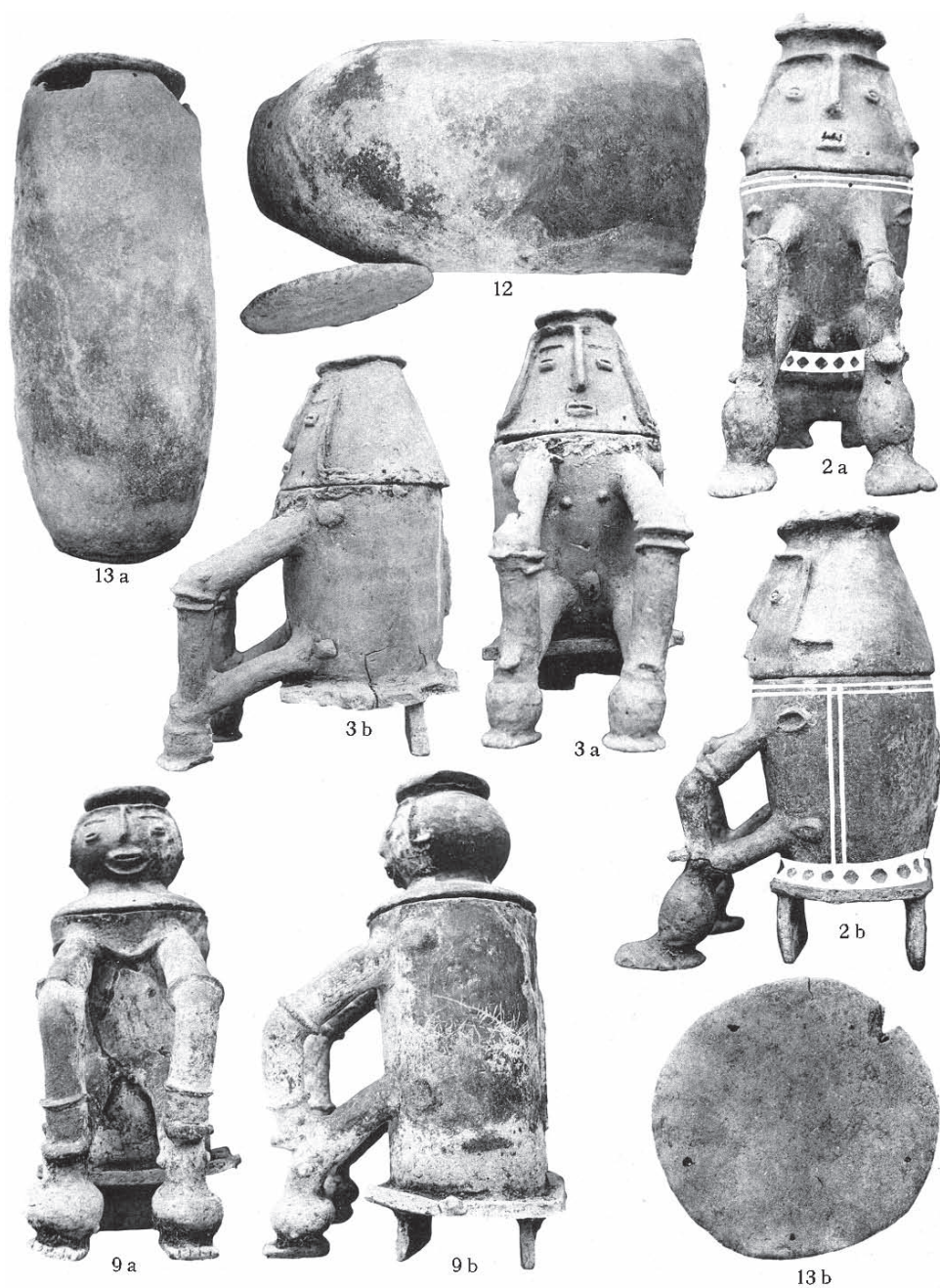


Figure 50.6. Plate published by Emilio Goeldi (1900) showing urns found by Aureliano Lima Guedes. Numbers 12 and 13 are examples of cylindrical urns.



Figure 50.7. Anthropomorphic urn representing a seated male figure. (Photo by Janduari Simões)



Figure 50.8. Yellow painted lid from an anthropomorphic urn. (photo by Janduari Simões)

Arms are presented in an unusual position with the elbows forward. They are attached to the body immediately below its rim. The hands rest on each knee with fingers represented by modeling or incisions. Clay fillets circling the arm around the wrist or upper arm represent adornments. The number of fingers varies with some urns having up to seven fingers on a hand. On six urns orifices were found near the elbows and knees. The legs are flexed and fixed to the body near its base. The calves are thick in relation to the thigh and some have fillets circling the leg below the knee, probably suggesting ligatures of cotton or other fiber to thicken the calves, a practice still employed by some indigenous Amazonians. There are also rounded appliques on the back part of the knee and anklebone. The feet are flat and rest squarely on the ground. Toes are flat and represented by incisions, and the number varies as with the fingers.

The bench is made up of two parts, the seat and the legs. Height ranges from 7 to 10.5 cm. The seat of the bench is rectangular, with the body welded to the top. Most benches are zoomorphic with the head and tail represented by appliques attached to opposite sides. Generally they depict the head of the animal on the right side and the tail on the left. Tails are always similar to one another, a clay fillet 4 to 5 cm long, thicker at the end attached to the bench. The thinner end of the tail is and always pointed upward as if it were rolling up. The head can be circular, triangular, or square. One of the benches had two heads side by side. Mouth, nose, eyes, and eyebrows are represented. Some faces have a human appearance while others look like animals with vertical triangular ears. One of the benches has the head of a bird. The legs of the benches are formed by two rectangular slabs fixed perpendicularly to the bottom of the seat that can be continuous or divided by a gap.

The zoomorphic urns (Figure 50.9), ranging in height from 19 to 34 cm, represent a standing quadruped animal. The head can be circular or triangular and have a well defined face with eyebrows, eyes, nose, and mouth, giving it a human appearance. These urns resemble benches of anthropomorphic urns in some ways. The body is generally oval-shaped and was closed by a removable cover. Legs are cylindrical and hollow with nails or claws represented on the feet.

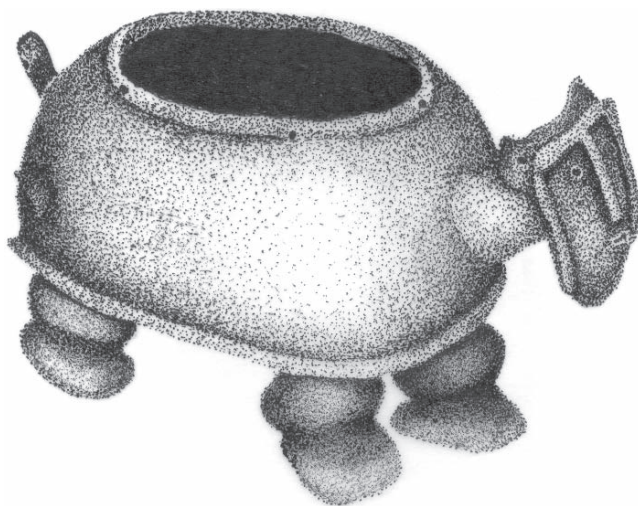


Figure 50.9. Zoomorphic urn found in the cave Gruta do Pocinho. (Drawing by J. Mardock)

The processes of coiling and modeling were used to manufacture Urns. The body, arms, and legs of the anthropomorphic urns are generally hollow cylinders and made by coiling, like the paws of the zoomorphic benches. The facial elements of both types of urns were made by coiling. Adornments were formed by adding coils as appliqué fillets, modeling and painting. Benches were constructed with molded slabs.

The clay used to make the urns was mixed with crushed rock or grog. This mixture is similar to that found in ceramics from open sites. Surface finish of the urns is irregular, giving them a rough aspect. The underside of the benches is not smoothed or polished and almost always shows circular marks, probably the result of an object or objects used to support the clay while it was shaped. Paste with a different texture can be observed in restoring cracks that occurred later in the urns. The same type of resin that was used around the rim, apparently to seal the urns, was found on some appendices, probably to attach them to the body.

Analysis indicates that all urns, both anthropomorphic and zoomorphic, were covered with painting on the surface although few examples of this type of decoration have preserved (Figure 50.10). As mentioned before, colors were white, black, yellow, and red. Some motifs in white and black were executed with fine lines, approximately 3 to 4 mm wide, and were probably made with a fine pointed, flexible object to execute the curves. Yellow was used for painting entire area, and must have been done with a wide instrument or with the fingers. Some urns give the impression that the yellow paint was applied almost like a slip, although always irregularly.

The decorative motifs on the Maracá urns, as with those found on some other archaeological traditions in the Amazon (Gomes 2001; Schaan 2001), may represent body painting, that is often practiced among indigenous groups today, for special occasions as well as everyday life (Muller 1992; Silva and Farias 1992; Velthem 2003; Vidal 1992) (Figure 50.10). Painting is found on both the body and the head of the urns, with analysis revealing four component elements in the designs; horizontal line, vertical line, sinuous line, and lozenge. Supplementing these elements is the filling in of large areas with yellow and, rarely, with black.

There are decorative motifs on the face and the back of the head. Only yellow painting is used on the face, which never passes the sides delimited by the appliqué fillets. Figure 50.11



Figure 50.10. Painting on urns in the cave Gruta do Veadó. (photo by Edithe Pereira)

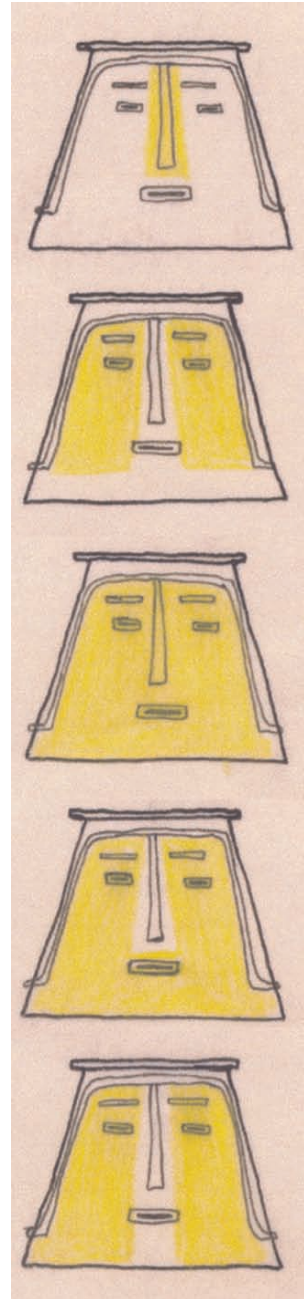


Figure 50.11. Five types of yellow painting on the faces of the urn lids. Type 1: Nasal region is painted with the sides of the face unpainted. Type 2: Nasal region is unpainted and sides of the face are partially painted. Type 3: Entire face is painted. Type 4: Nasal region is unpainted and the mouth and sides of face are painted. Type 5: Center part of face is unpainted and the sides are completely painted. (drawn by Carlos Barbosa)

shows the five types of facial painting identified so far. Motifs on the back of the head are lozenges and sinuous lines (Figure 50.12). The combination of these minimal elements results in sixteen decorative motifs presented in horizontal bands (Figure 50.13) around the rim and base of the urn and vertical bands (Figure 50.14) on the middle of the back and chest, defining two large panels that are filled with sinuous lines. Figure 50.15 shows the full distribution of painting on an anthropomorphic urn.

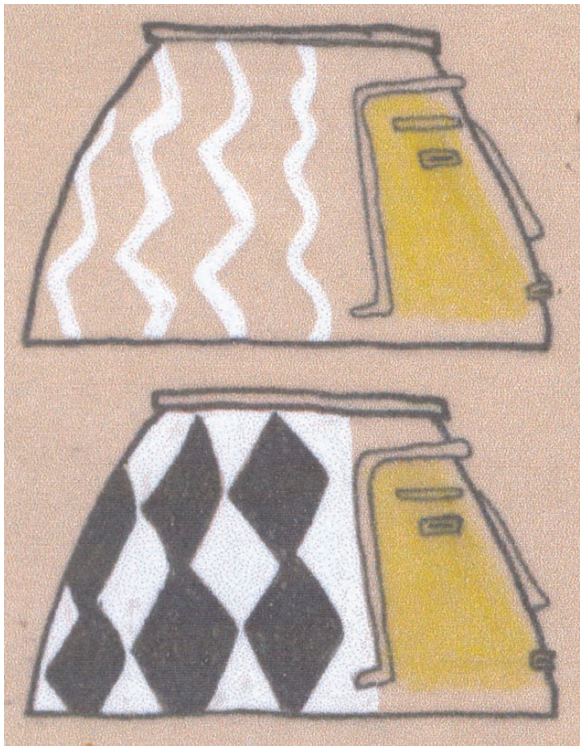


Figure 50.12. Sinuous line and lozenge motifs on the back of the urn heads. (drawn by Carlos Barbosa)



Figure 50.13. Horizontal decorative motifs. (drawn by Carlos Barbosa)



Figure 50.14. Vertical decorative motifs. (drawn by Carlos Barbosa)



Figure 50.15. Drawing based on plates done by Emilio Goeldi in 1900 showing the full distribution of painting on an anthropomorphic urn. (J. Mardock)

The orderly and patterned distribution of design spaces, elements and motifs on the mortuary urns suggest a deeper meaning in “body painting” than just the desire to decorate an object. Most probably, they participated in a semiotic system that communicated shared information among members of the community.

UNCOVERING THE FUNERAL PRACTICES

Rituals mark important occasions in a society, reaffirming its cultural identity. Funeral rituals may suggest the ways in which a society confronted death and demonstrated the intention to maintain a connection with the dead. Archaeological studies are far from reconstructing these rituals but the cemetery sites contain valuable information about three major domains: biological, cultural, and taphonomic (Mendonça de Souza, Guapindaia, and Ribeiro 2000). Looking at all in conjunction amplifies what can be learned.

In order to better understand Maracá funeral practices, archaeological data from other regions, ethnographic and ethnohistoric information, observations of the first scientists in the region, and osteological analyses are valuable additions to the study of sites and cemeteries.

The Maracá cemeteries are located in caves or rock shelters in the highlands of the Serra do Laranjal while the habitation sites are in lower areas near the Maracá River. We can see the use of distinct localities forming an opposition between open and closed areas. Habitation sites next to the river were areas of easy access and space of the living while the cemeteries in the mountains, in the most reclusive places on the landscape, were the places reserved for the dead to rest. We may interpret this as an expression of landscape use through cultural and social choices delimiting areas for everyday and ritual use. The cemeteries are relatively close to the habitation sites pointing to a permanent link between the world of the living and the dead in Maracá society. This relationship is perhaps more evident if we consider the argument of Schaan (2003:1): “the location of cemeteries and ritual space in relation to living spaces in complex societies is a reflection of cosmologic, symbolic, and political conceptions about the relationship between the living and their ancestors and especially since the link with the ancestors can be consciously used by social groups to legitimize or negotiate relations of power”.

The location of the cemeteries in the mountains and the use of isolated and protected caves to shelter the urns reveal another aspect of preoccupation with preservation of the dead and funerary rituals. The distribution of the urns inside the caves is not limited to particular areas. In some caves the urns are close to the entrance and in others they are at the back. Most of the caves have the material deposited close to the entrance; these caves include Gruta do Pocinho, Lapa do Pocinho, Gruta do Periquito, Abrigo das Caretas, Gruta das Formigas, Gruta do Baiuna, Gruta da Caba, Gruta do Jaboti, and Gruta do Veadó. Gruta da Caba was peculiar in that there are two areas, one formed by a rock shelter no more than 2 m deep and a second area in the back comprised of a cave about 8 m deep. The urns were placed in the first area, the rock shelter, in such a way that any visitor would see them immediately. The second area did not contain urns but only sherds from small vessels and fragments of quartz that were part of the funerary offerings. Koch-Grünberg (2005: 184) recorded use of quartz crystal by shaman in curing ritual among Siusi Indians.

At Gruta das Caretas, Lapa das Caretas, and Gruta do Cururu the urns were placed at the back of the cave. At the first two sites, two of the urns are seen upon entering about 2 m

into the cave, for visibility is good without need for artificial light. At Gruta do Cururu it is only possible to see the urns after entering some 8 m into the cavern. This cave has two chambers and the material was deposited in the second smaller one. To reach it a visitor must squeeze through an opening 80 cm high and 70 cm wide. Consequently, this chamber is completely dark, making lighting necessary to see its urns. Material at Gruta do Carrapato was also placed in a secondary chamber that is small and dark.

The way the urns are arranged in the rock shelters and caves indicates that the intention was not to bury them but to leave them exposed and visible. Although all of the urns were placed on the surface, there seem to have been two manners of disposition. In one, the urns are immediately and completely visible on arrival. In the other, one must enter several meters inside first. Considering the fundamental relationship between the living and the dead in the social dynamics of indigenous peoples observed by many investigators (Chaumeil 1997; Cunha 1978; Malhano 1986; Roth 1924), the intentional exposition of the burial urns, and the proximity of cemeteries to habitation sites, suggest a special relationship between the villages and cemeteries that probably included visitation, maintenance of funeral ritual and offerings, practices involving consulting the dead, and so on (Mendonça de Souza, Guapindaia, and Ribeiro 2001). If we consider the arguments of Chaumeil (1997), the Maracá cemeteries seem to be a case contradicting assertions that the dead were rigorously excluded from relationships with the living in lowland South American communities (Carneiro da Cunha 1977, 1978; Chaumeil 1997; Clastres 1968).

Archaeological evidence shows that the treatment of the dead in the prehistoric Maracá region is characterized by secondary burials, implying two ritual moments in mortuary activity. First was the primary treatment in which the soft parts of the body decomposed. Second, came more permanent treatment in which the bones were disarticulated and deposited in a prescribed fashion inside a ceramic urn. As for the primary treatment, we can only surmise that there were practices such as those recorded by Humboldt (1852, 1853), Creveaux (1883), and Roth (1924) for indigenous South Americans. The absence of marks on the bones—especially abrasions—suggests that they were not scraped to remove soft tissue. Perhaps a more passive technique was used, similar to that recorded for the Yanomami who placed the body in a tree and waited for the soft tissue to decompose and drop off (Becher 1959 cited in Montardo 1995). Another example is the Bororo who threw water on the corpse to accelerate decomposition (Viertler 1991).

As Roth (1924) affirms, before European contact the principal indigenous nations practiced secondary burial where the bones, after exhuming the dead, could be used in a number of ways that included burning, consumption by drinking, distribution among relatives, placement in urns, and in other secondary rituals. Reichel-Dolmatoff (1997), in his treatment of anthropomorphic urns in the Middle Magdalena region of Colombia, observed that secondary funeral treatment was widespread in South America.

Analysis of the contents of the Maracá urns revealed that this ritual was characterized by the placement of clean bones from individual skeletons in anthropomorphic urns represented as the sex of the deceased. As Ferreira Penna has observed, the bones of the disarticulated skeleton were carefully arranged inside the urns. The pelvis was placed in the bottom of the urn, the long bones leaned against the inside wall, and the ribs and hand and foot bones were placed on top of the pelvis with the cranium above them. Farabee's (1916) idea that the urns were receptacles for ashes appears false. All of the urns observed contained bones, with no evidence of cremation.

Reichel-Dolmatoff (1997) analyzed secondary burials in several sites in Colombia and compared them with rituals of contemporary tribes from the same region. He found

that the process of decomposition, until the body is transformation into bones, has great importance, marking the disappearance of the deceased. In the next stage family members are freed from certain obligations so the secondary funeral is a collective festival of rejoicing in which the deceased finally discovers the road to “the beyond” and breaks direct ties with the world of the living. For Schaan (2003) secondary burial reveals conceptualization of the sequence of rituals as rites of passage that involve a rupture (death) with an established situation (life), a period of transition (decomposition of the body), and rites of integration into a new structure (placement in urns) and incorporation into a new social status (transformation into an ancestor). This interpretation seems to describe what happened in Maracá funerary rituals, especially considering aspects like the proximity of cemeteries to villages, non-burial of the dead, the ordered arrangement of the bones, and evidence of urn maintenance, all strengthening the idea of a permanent connection between the world of the living and the world of the dead.

The existence of the two types of urns—anthropomorphic and zoomorphic—could indicate differential treatment of some people. The following observations regarding distribution of these two types may be relevant: 1) two caves contained only zoomorphic urns; 2) four caves contained both types of urns associated with one another but the caves contained a lesser number of zoomorphic urns; 3) in another four caves anthropomorphic urns occur with funerary offerings including a necklace of ceramic beads, fragments of quartz, and small ceramic vessels; and 4) another two caves contained only anthropomorphic urns. Since anthropomorphic urns predominate, zoomorphic urns were used less frequently, perhaps by persons of different social status. Ethnographic literature describes various forms of mortuary treatment, usually dependent on sex, age, the importance of the person to the group, and the way death occurred (Chaumeil 1997; Montardo 1995: 35–39).

The most notable characteristics of the Maracá anthropomorphic urns are the erect posture seated on a bench with hands resting on the knees, display of sex, and the presence of adornments and body painting. Hypotheses can be proposed by analyzing each of these aspects and comparing them with ethnographic references. Ethnography regarding decorations (body painting and adornments) indicates that some groups use them not only for ritual but for everyday life. Painting and adornments are used daily by the Xerente, Xicrin, Kadiweu, and Wayana with the objective of integrating themselves with nature while differentiating themselves from other animals, thus making themselves human (Ribeiro 1987). The Xerente use different motifs painted on the body to represent lineages or “parties” (Silva and Farias 1992). For the Wayana the use of adornments represents one form of social and esthetic individuality (Velthem 2003). Velthem (2003) referred specifically to painting as “the most expressive of decorative techniques because it is intimately connected with chromatic elaboration. The colors represent a fundamental ordering that connects dominions and elements initially disconnected such as humans, animals, objects, plants, and the supernatural. In this way the principal function of the colors is to be a link that sharpens the perception of identity necessary for the ordering of the cosmos”.

Analysis of the painting on Maracá urns revealed decoration in an orderly patterned distribution on the urn surfaces, demonstrating that their presence not only fulfills an esthetic but, must relate to the social standing of the individual who was placed inside. As demonstrated by ethnological studies, these patterns could have functioned to identify an individual in both the world of the living and the dead.

According to the ethnographic literature, benches were much more than artifacts simply employed for comfort. McEwan (2001) believes that modern ethnographies of Tukano speakers in the northeastern Amazon Basin give us the best insights into the significance of

the benches as well as their specific social contexts. In Tukano society sitting on a bench is reserved almost exclusively for men and the acquisition of a bench is one of the most important items that a shaman must procure before he can practice his art. Sitting on a bench is considered essential for visionary powers, and it symbolizes a central axial reference point from which the shaman mediates, chants, and administers his rites and cures. According to Berta Ribeiro (1988), "the benches...are, for the chiefs, shamans, and visitors, a privilege for men". In his work on sexual and religious symbolism among the Tukano Amerindians, Reichel-Dolmatoff (1971) affirms that material objects (not only those destined for magical functions) hold profoundly significant symbolism. Among these objects he cites benches as an example, whose function is not simply to offer rest for the body but also to facilitate mental concentration. The Tukano express this conviction when they refer to a person incapable of making a judgment by saying: "he has no bench". Shamans also use benches in boys' puberty rituals. Ribeiro (1995) further emphasizes that the bench is among the ritual objects that can be considered "symbols of sibs with higher status or of individuals in a higher position within a sib". Another ethnographic example comes from the Wanano, for whom the act of sitting down implies eternity (Chernela 1993). In a sitting position connection is made with the ancestors, establishing the link between living and dead.

Reichel-Dolmatoff (1997) suggests that the Colombian urns from the Middle Magdalena that present masculine and feminine figures seated on benches might represent shamans. He considered the urn to depict a human figure seated on a bench in an erect position with hands resting on knees and with the head and body adorned like a shaman in ritual posture, in this case a funeral ritual. He interpreted decorative motifs on the urns as similar to visions experienced during hallucinogenic trance. The disproportionate, distorted, or grotesque aspect of the urn figures is also reminiscent of the visionary world of drug-induced hallucinations.

The benches of the Maracá urns are also zoomorphic and, like zoomorphic urns, have a head and tail, reinforcing the probability that they conveyed symbolic messages. Furthermore, it is notable that both male and female figures are seated on benches. Considering that sitting on a bench is affirmed to be a high-status and masculine privilege among modern lowland Amerindians, the use of a bench surely had symbolic significance in Maracá society. Apparently, at least at death, women were afforded this powerful symbol, and the roles it denoted – a point also suggested by Roosevelt (1988).

CONTEXTUALIZING MARACÁ

Considering their apparently unique characteristics and restricted regional distribution, Maracá mortuary practices could seem, at first glance, like an isolated development during the final moment of Amazonian occupation before the European invasion. However, closer inspection shows that seated anthropomorphic funerary urns are not restricted to the lower Amazon. They have been reported in places as far away as Colombia, Ecuador, and Venezuela suggesting that the cultural practice was wide spread (Meggers 1957; Reichel-Dolmatoff 1997). According to Fausto (2000), immediately before the European invasion, the Amerindian social systems of South America were highly interconnected, both locally and regionally, as participants in a vast commercial networks that united regions and peoples from distant places, and facilitated the circulation and diffusion of ideas, customs, people, and objects.

In a more local context Maracá is just one of a series of cultural traditions that flourished in the lower Amazon between the beginning of the second millennium AD and

European colonization, including the Marajoara, Aristé, and Mazagão. One institution these cultures have in common is mortuary, the practice of placing disarticulated bones in anthropomorphic, zoomorphic, or simple ceramic funerary urns. The locations of cemeteries were diverse with some cultures burying the urns and others displaying them on the surface. Indeed, variation in Amazonian funerary practices, as well as their social and ideological significance, merit further studies, including research in the Maracá region to look for others types of funerary practices.

Study of funerary activities can tell us about the complex beliefs regarding death in Amazonian societies. The discussion of funeral practices in lowland South America has been a somewhat polemic issue. Chaumeil (1997) claims that while most recent studies corroborate the existence of complex funerary practices, some important works insist that relatively simple practices predominated. According to this argument, in contrast to the Andean world, Amazonian mortuary tradition was marked by the absence of a cult of the dead, lack of formally defined cemeteries, short genealogical memory, taboo against using the names of the dead, and institutionalized forgetfulness – not memory – of deceased ancestors. Compensation for such disinterest and lack of visible funerary practices was reported to be the development of complex metaphysical ideas about death.

Examining this issue, Chaumeil (1997) questions the validity of simple affirmations arguing that there is no set pattern of funerary treatments in the vast Amazonian region. Even in one group it is rare to find a uniform treatment for all the dead. According to him, most of the cultures he studied combined various types of funeral practices. Consequently, arguments for radical discontinuity between the living and the dead, as well as arguments affirming simplicity in Amazonian funerary rituals, that emphasize an Amazon/Andes dichotomy, must not be accepted uncritically. To the contrary, Chaumeil observes many reciprocal influences among funeral practices and attitudes about the dead between the Amazon and Andean regions.

There are two basic questions, according to Chaumeil (1997). The first regards the degree of complexity of funerals in the lowlands and the second considers how the dead are remembered. Are the dead remembered as individuals to be converted into ancestors, or as anonymous members of a collective “community of the dead”? It is likely that both forms of memory existed, with the individuals who were transformed into ancestors belonging to a specific group whose social differentiation had already been established in life.

Although we have not encountered any evidence for other types of funerals in the Maracá region, it is still too early to determine whether the funeral treatment described here was given to everyone. Further research may show that these cemeteries were reserved for a restricted set of people destined to become ancestors, as argued by Chaumeil. Such individuals may have been prominent social figures, such as great warriors or shamans (Chaumeil 1992 cited in Chaumeil 1997). Therefore, we should consider the possibility that Maracá urns, together with those from Marajó, Aristé, and Mazagão, reveal prehistoric Amazonian ancestor cults (Guapindaia 2000, 2001; Schaan 2003).

The appearance of a Maracá cemetery—seeing the “individuals” seated erect upon their benches—is striking. Even with most of the urns destroyed, visitors are impressed by the place. When the Maracá cemetery was intact, with all of its urns beautifully painted and arranged in their original places, it would have elicited feelings of awe, reverence, and respect. The scene reminds one of a solemn meeting with the members participating in a ceremony or deciding important questions for the community (McEwan 2001). Whatever their specific beliefs may have been, the funeral treatments of the Maracá people were designed to last, and indeed, they have withstood the ravages of time to speak to us about their past.

ACKNOWLEDGMENTS This chapter was translated by Morgan Schmidt.

REFERENCES

- Andrade, Lúcia, 1992, A marca dos tempos: identidade, estrutura e mudança entre os Assurini do Trocará. In *Grafismo Indígena*, edited by Lux Vidal. Studio Nobel/EDUSP. São Paulo.
- Carvalho, Silva M. S., 1983, A cerâmica e os rituais antropofágicos. *Revista de Antropologia* 26. São Paulo.
- Chaumeil, Jean-Pierre, 1997, Entre la memoria y el olvido. Observaciones sobre los ritos funerarios en las tierras baja de América del Sur. *Boletín de Arqueología PUCP* 1: 207–232. Pontificia Universidad Católica del Perú, Lima.
- Chernela, Janet M., 1993, *The Wanano Indians of the Brazilian Amazon: A Sense of Space*. University Texas Press, Austin.
- Chymz, Igor, 1976, Terminologia arqueológica brasileira para a cerâmica. *Cadernos de Arqueologia*, I (1). Museu de Arqueologia e Artes Populares, Univ. Federal do Paraná, Paranaguá.
- Creveaux, Jean, 1883, *Voyages dans L'Amerique du Sud*. Hachette, Paris.
- Costa, Angyone, 1980, *Introdução à Arqueologia Brasileira*, fourth edition. Companhia Editora Nacional, São Paulo.
- Cunha, Manoela C., 1978, *Os Mortos e os Outros*. Ed. Hucitec, São Paulo.
- Cunha, O. R. da, 1989, *Talento e Atitude: Estudos Biográficos do Museu Paraense Emílio Goeldi*. Coleção Alexandre Rodrigues Ferreira, Belém.
- Evans, Clifford, 1955, Filiações das culturas arqueológicas no Território do Amapá. *Annals of the 31st International Congress of Americanists*. São Paulo.
- Farabee, William C., 1921, Exploration at the mouth of Amazon. *The Museum Journal* 12: 142–161. University Museum, University of Pennsylvania, Philadelphia.
- Ferreira Penna, Domingos S., 1877, Apontamentos sobre os cerâmios do Pará. *Arquivos do Museu Nacional* 2: 47–67. Rio de Janeiro.
- , 1973, *Obras Completas*. Vol. II, reedição. Conselho Estadual de Cultura, Belém.
- Gallois, Dominique T., 1992, Arte iconográfica Waiãpi. In *Grafismo Indígena*, edited by Lux Vidal. Studio Nobel/EDUSP, São Paulo.
- Goeldi, Emilio A., 1900, *Excavações Archeológicas em 1895, 1ª Parte, As cavernas funerárias artificiais de índios hoje extintos no Rio Cunany (Coanany) e sua cerâmica*. Memórias do Museu Goeldi, Pará.
- Gomes, Denise, 2001, Santarém: symbolism and power in the tropical forest. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto and Eduardo G. Neves, pp. 134–155. British Museum Press, London.
- Guapindaia, Vera and Ana L. Machado, 1997, O potencial arqueológico da região do Rio Maracá. Ig. do Lago (AP). *Boletim do MPEG, Antropologia* 13 (1): 67–102. Belém.
- , 1999, A cerâmica Maracá: história e iconografia (Cap.4). In *Arte da Terra: Resgate da Cultura Material e Iconográfica do Pará*, pp. 44–53.
- and Ana L. Machado, 2000, O Potencial Arqueológico da região do rio Maracá/ Igarapé do Lago (AP). In *Anais do IX Congresso de Arqueologia Brasileira* (CD ROM), edited by S. M. F. Mendonça de Souza. Rio de Janeiro, SAB.
- , [n.d.], Práticas funerárias na região do Igarapé do Lago, Rio Maracá, Amapá: considerações preliminares. *CLIO, Série Arqueológica*. Anais da X Reunião Científica da SAB, pp. 55–66, Recife, UFPE.
- , 2001, Encountering the ancestors: the Maracá urns. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto and Eduardo G. Neves, pp. 156–173. British Museum Press, London.
- , 2005, Potencial Arqueológico do Estado do Amapá. As região do rio Maracá In *Anais do XIII Congresso da Sociedade de Arqueologia Brasileira. Arqueologia, Patrimônio e Turismo. Simpósio – Arqueologia Amazônica – Amapá: Patrimônio, Gestão Estadual e Pesquisa*. (CD ROM). Campo Grande, 4–8 September.
- Guedes, Aureliano P. de Lima, 1897, Relatório sobre uma missão ethnográfica e archeologica nos rios Maracá e Anauera-pucu. *Bol. Mus. Hist. Nat. Emogr.* 2:42–64. Belém.
- Hartt, Charles F., 1872, On the occurrence of face urns in Brazil. *American Naturalist* 6 (10): 607–10.
- , 1885, Contribuições para a ethnologia do valle do Amazonas. *Arch. Mus. Nacional* 6:1–174. Rio de Janeiro.
- Hilbert, Klaus and Mauro Barreto, 1988, Relatório de viagem do projeto arqueológico de levantamento de sítios pré-cerâmicos no rio Maracá-AP. Museu Paraense Emílio Goeldi, Belém, 8 pp. Unpublished manuscript.
- Humboldt, Alexander von and Aimé Bonpland, 1807, *Voyage aux Regions Equinoxiales du Nouveux Continent, faits dans le anées 1799 a 1804*. Schoel, Paris.

- Lacerda, J. B., 1881, Crânios de Maracá, Guyana Brasileira. *Ach. Mus. Nac.* 4:35–45. Rio de Janeiro.
- Malhano, Hamilton Botelho, 1986, A construção do espaço de morar entre os Karajá do Araguaia: aldeia, casa e cemitério. *Boletim do Museu Nacional* 55. Rio de Janeiro.
- McEwan, Colin, 2001, Seats of power: axiality and access to invisible worlds. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto, and Eduardo G. Neves, pp. 176–197. British Museum Press, London.
- Meggers, Betty and Clifford Evans, 1957, *Archaeological Investigations at the Mouth of the Amazon*. Bureau of American Ethnology, 167. Washington, D.C.
- Mendonça de Souza, Sheila, Vera Guapindaia and Cláudia Carvalho-Rodrigues, 2001, A necrópole Maracá e os problemas interpretativos em um cemitério sem enterramentos. *Boletim do MPEG, Antropologia* 17(2): 479–520. Belém.
- Métraux, Alfred, 1947, Mourning rites and burial forms of the South American Indians. *América Indígena* 7: 7–44.
- Montardo, Deise Lucy Oliveira, 1995, Práticas Funerárias das Populações Pré-coloniais e Suas Evidências Arqueológicas - (Reflexões Iniciais). Dissertação de Mestrado. Porto Alegre.
- Muller, Regina P., 1992, Mensagens visuais na ornamentação corporal Xavante. In *Grafismo Indígena*, edited by Lux Vidal. Studio Nobel/EDUSP. São Paulo.
- Netto, Ladislau, 1885, Investigações sobre a Arqueologia Brasileira. *Arquivos do Museu Nacional*, 6. Rio de Janeiro.
- Neves, Eduardo G., 1999–2000, O velho e o novo na arqueologia Amazônia. *Revista USP* 44: 86–111. São Paulo.
- Nordenskiöld, Erland, 1930, *Ars Americana, Vol. I: L'Archaeologie du Basin de L'Amazone*. Les Éditions G. Van Oest, Paris.
- Nimuendaju, Curt, 1927, Streifzug vom Rio Jari zum Maraca. *Petermanns Mitl.* 73:356–358.
- Projeto Radam Brasil. Folha AS-22-Belém. Rio de Janeiro/DNPM (Levantamento de Recursos Naturais, 5.
- Reichel-Domatoff, Gerardo, 1972, *Amazonian Cosmos. The Sexual and Religious Symbolism of the Tukano Indians*. University of Chicago Press, Chicago and London.
- Ribeiro, Berta G., 1987, Arte Índia. *Suma Etnológica Brasileira*, Vol. 3, edited by Darcy Ribeiro, et al. Editora Vozes, Petrópolis-Rio de Janeiro.
- _____, 1988, *Dicionário do Artesanato Indígena*. EDUSP, São Paulo.
- _____, 1995, *Os Índios das Águas Pretas*. EDUSP/Companhia das Letras, São Paulo.
- Rodrigues, Maria da C. M., 1991, *Arqueologia. Análise do Simbólico*, Vol. II. Europress Lisboa.
- Roosevelt, Anna C., 1992, As sociedades complexas indígenas na Amazônia. In *História dos Índios no Brasil*, edited by Manuela Carneiro Cunha, pp. 53–86. Cia. Das Letras, São Paulo. FAPESP/SMN.
- Roth, Walter E., 1924, An introduction study of arts, crafts and customs of the Guiana Indians. In *Bureau of American Ethnology 38th Annual Report (1916–1917)*. Smithsonian Institution, Washington, D.C.
- Schaan, Denise, 2001, Into the labyrinths of Marajora pottery: status and cultural identity in prehistoric Amazonia. In *Unknown Amazon: Culture in Nature in Ancient Brazil*, edited by Colin McEwan, Christiana Barreto, and Eduardo G. Neves, pp. 108–133. British Museum Press, London.
- _____, 2003, Investigando Gênero e Organização Social no Espaço Ritual e Funerário Marajoara. In *XII Congresso da Sociedade de Arqueologia Brasileira Simpósio – Arqueologia Funerária*. São Paulo. 21–25 September 2003.
- Silva, Aracy L. da and Agenor T. P. Farias, 1992, Pintura corporal e sociedade: os “partidos” Xerente. In *Grafismo Indígena*, edited by Lux Vidal. Studio Nobel/EDUSP. São Paulo.
- Simões, Mário F., 1972, Índice das fases arqueológicas brasileiras 1950–71. *Publ. Avulsas Mus. Pa. Emílio Goeldi* 18. Belém.
- _____, and Fernanda Araújo Costa, 1978, Áreas da Amazônia legal brasileira para pesquisa e cadastro de sítios arqueológicos. *Publ. Avulsas Mus. Pa. Emílio Goeldi* 30. Belém.
- Vidal, Lux, (ed.), 1992, *Grafismo Indígena*. Studio Nobel/EDUSP. São Paulo.
- _____, and Aracy L. da Silva, 1992, Antropologia estética: enfoques teóricos e contribuições metodológicas. In *Grafismo Indígena*, edited by Lux Vidal. Studio Nobel/EDUSP, São Paulo.
- Viertler, Renate B., 1991, *A refeição das Almas*. Hucitec/EDUSP, São Paulo.

Ancestor Images in the Andes

GEORGE F. LAU

INTRODUCTION

When Spanish and New World societies collided in the early sixteenth century, ancestor veneration was a widespread religious practice throughout the Central Andes and the European conquerors wrote vividly, often disparagingly, about it. We understand ancient Andean practices mainly through these accounts and testimonies documented by Spanish eyewitnesses. They tell us, for instance, that the veneration of royal mummies was vital in the ritual life of Cuzco, the Inca capital, and that conquered nations and coeval groups observed their own ancestor cults in different, local forms (MacCormack 1991; Rowe 1948; Trimborn 1968). In addition to key histories of the Incas and the Cuzco region, later writings (court proceedings, native and Spanish testimonials) related Spanish campaigns to “extirpate” idolatries throughout the Andes, among which was ancestor veneration (e.g., Arriaga 1968; Duviols 1986).

In addition to historical documents (see Doyle 1988), the archaeological record is well developed for this region [Note 1], both because of good preservation and varied iconography depictions. Recent studies on ancestor veneration in the Central Andes have considered its antiquity, range of practices, and implications for Andean societies (DeLeonardis and Lau 2004; Isbell 1997; Kaulicke 2001; Salomon 1995). This essay discusses ancestor images in the Andean region (Figure 51.1).

But ancestors—those named forebears or progenitors—are difficult to recognize in the prehistoric Andean record, in contrast to the practices of some early civilizations, such as Egypt or China, which are privileged because key individuals were celebrated in image *and* word. Without durable artifacts bearing text captions, it is nearly impossible to recognize specific ancestors in antiquity. Indeed, if we consider the nature of ancestral spirits and potencies in the colonial Andes, which could also take the form of a plain stone or rock outcrop, and recognize that many cult objects were also made of perishable materials, such as wood, feathers and vegetal materials, then we come to the realization that under many circumstances, ancestor images would be difficult to identify in the archaeological record.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

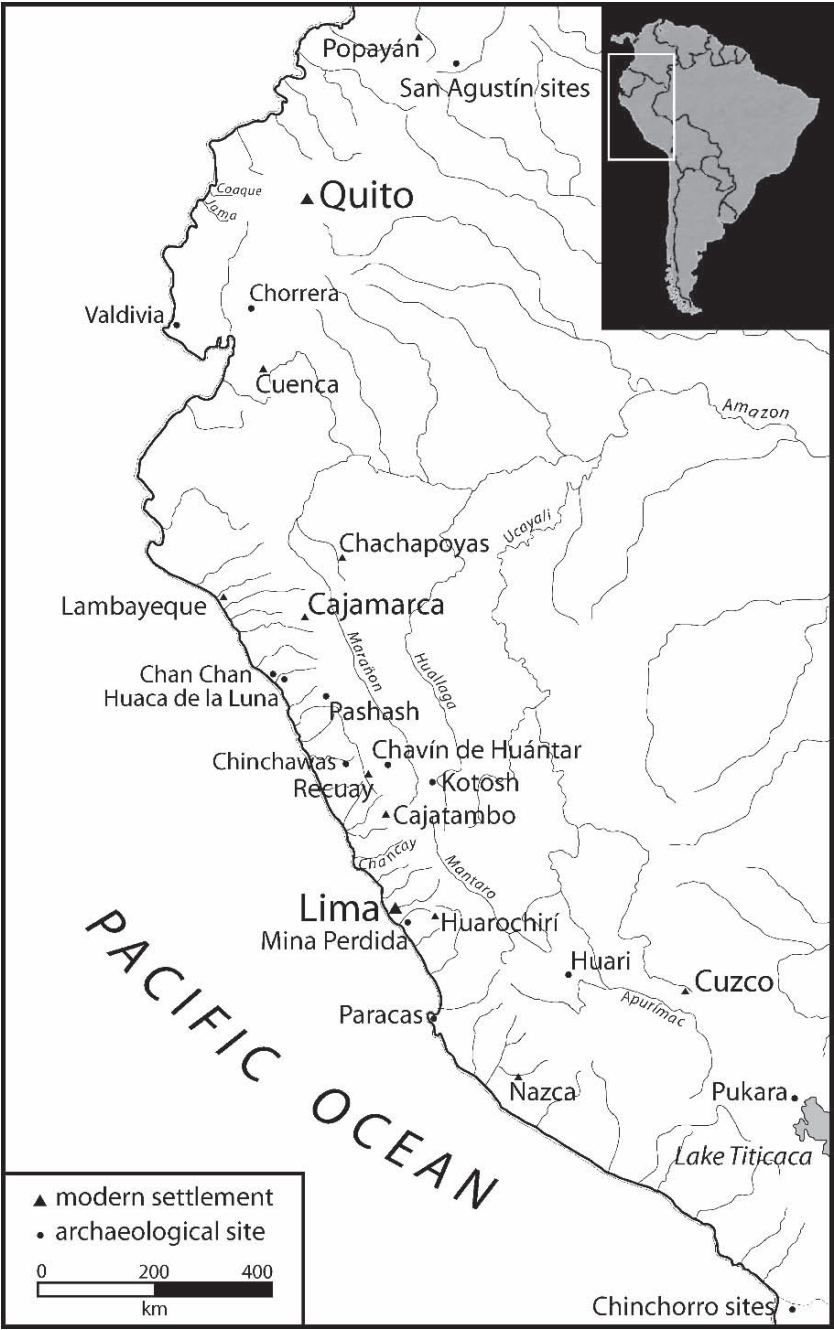


Figure 51.1. Map of western South America, showing settlements and archaeological sites/areas referred to in text. (George Lau)

Archaeologists working on pre-Inca cultures have theorized ancestors by means of proxy, associative evidence. Isbell (1997) contended that open, above-ground tombs (chullpas) were, as repositories for mummy bundles with easy access for visitation, diagnostic indicators of ancestor cults. Scholars have examined the reuse/displacement of tombs

and skeletal remains as activities which indicate concern for the remains of the deceased long after primary interment (Isbell 2004; Millaire 2004). Lau (2002) and Hastorf (2003) focused on special enclosed spaces, near tombs or having stone sculpture, with evidence of intensive commemorative rites. Other studies emphasize built and natural landmarks, such as mountains, mausolea, and caves, which form parts of sacred geographies with ancestral histories (Glowacki and Malpass 2003). Paradoxically, very few studies of ancestor veneration have examined the ancestor itself.

The present contribution focuses on the durable cult images of Andean religious practices. Specifically, I examine different forms of ancestors, with an emphasis on idols and effigies. Some ancestor effigies, such as a mummy bundle or carved monolith, are distinctive because they are often elaborate, visually stunning things. Although their visibility depends on conditions of preservation and context, such images are prominent, in large part, because they were made to last. In contrast to ephemeral forms of funerary art (Küchler 1987; Rowlands 1993), Andean cult images often intended to incorporate ancestors enduringly into the affairs of the living. Inca and colonial period indigenous groups are remarkable for the wide range of interpersonal dealings the living had with ancestral simulacra.

In this chapter, I emphasize the kinds of social interaction that material expressions of ancestors enable, encourage or organize. For this, it is useful to consider Gell's contention (1998: 20) that artworks are purposeful extensions, or agents, of people. Artworks are "persons" not in the biological, organismal sense, but from their role in mediating social relations. An object can actively shape interactions or initiate "causal sequences" (Gell 1998: 16) between its makers, users, patrons, audience, and indeed, itself—i.e., exert agency. The metaphor between artworks and persons deserves consideration here because many Andean ancestor effigies acted for and assumed the image of people. I contend that ancient Andean ancestors were like "persons". This is precisely because, as objects of veneration, Andean effigies enabled crucial physical interactions between people and divinities.

Three general questions guide this discussion:

- What were some of the principal forms of Andean ancestor effigies?
- Where do we find ancestor effigies and their veneration?
- And perhaps most important, what did ancestor images do?

BACKGROUND

Like most mortuary ritual, ancestor ceremonies help to reconstitute society by reconciling physical death with local concepts of the body and soul, and the "reallocation" of the roles and possessions of the deceased (Bloch and Parry 1982: 3-6). Progenitors, as opposed to the general dead, are honored by descendants in exchange for their supernatural favor (e.g., Cobo 1990: 42). By ensuring food or fertility in crops and herds, for example, death rituals revitalize "that resource which is *culturally conceived* to be the most essential to the reproduction of the social order" (Bloch and Parry 1982: 7, emphasis in original).

As conservative institutions that reinforce the authority of elders, ancestor cults are often prominent in small-scale agrarian societies where there is competition for resources, such as land, water, or use rights. Upon someone's death, ancestor ceremonies reinforce formalized rules of inheritance (e.g., father to son) and facilitate smooth transmission of resource rights and/or authority (Dillehay 1995; Salomon 1995; Zuidema 1973). Most ancestor cults, in other words, emphasize community stability and group boundaries.

Spanish chroniclers described regular ceremonies in which the mummies of Inca kings were feted and consulted as important dignitaries in great feasts, offerings, and processions (for syntheses see Isbell 1997:38-68; Kaulicke 2001:1-54). These events combined elite ritual, spectacles of royal pomp, and state-sponsored bacchanalia. By the seventeenth century, however, the Church actively endeavored to bring veneration of ancestor images to an end. Large numbers of mummy bundles were burned, and tombs, idols, and ritual paraphernalia was destroyed. The Spaniards felt it necessary to carefully dispose of the ashes and remnants of the burned idols, lest the Indians re-constitute them (Arriaga 1968: 25-26; Duviols 1986: 185). As devastating as this destructive process was, native Andeans found other ways to engage ancestral spirits. As indicated above, their strategies for the preservation of cultural beliefs and practices under colonial rule included such ideas as ideologically converting ancestors into stones and everyday items (such as jugs), which could be made discreet or easily hidden. Ancestors were therefore reinvented and recast as things and places, which were considered suitable under the new circumstance of Spanish control and Christianity. But just as colonial practices were characterized by change (Mills 1997: 5), we should expect that ancient Andean religiosity towards ancestors took multiple forms and has been, since pre-ceramic times, in the perpetual process of becoming.

FORMS OF ANCESTRAL IMAGES

Arriaga (1968: 90), a key extirpator of idolatries, thought that idolatrous ritual persisted because there were constant physical reminders of obligation to ancestral presences. The idols, mummy bundles, lesser spirit-figures, and related materials (musical instruments, apparel, maize beer, etc.) were all “incitements of idolatry”. In effect, Arriaga attributes to things precisely what Gell (1998) would term “agency”. The cult objects, by way of their availability/vicinity, fostered continued attention to ancestors.

Native groups perceived ancestral divinity and associations in different types of things. Regional creator deities were called huacas, and were manifested frequently as stone monuments or geographical features, such as mountains, stone uprights and outcrops (Duviols 1967; Salomon 1991). The word huaca, in particular, seems to have had some inconsistency in usage. Huaca referred to creator divinities but also grew to mean a range of sacred things and places, especially that which manifested the superhuman (Salomon 1991: 17) or had treasures (Ramírez 1996: 142).

Scholars also recognize the importance of mummy bundles (*mallquis*) of important individuals who were considered group progenitors and the offspring of huacas (Doyle 1988: 97). Similar to the conceptual slippage of huaca, when describing images, idols or apical ancestors, the use of “mallqui” and “huaca” as terms, often converged (Duviols 1967; Zuidema 1973: 19).

Native peoples also kept “lesser” idols, known sometimes as chancas, conopas, or con churi (cunchur). These were often small stones, sometimes modified, with peculiar shapes or colors. Usually described as personal or family “household” gods, these idols were essentially specific to an individual and his/her near kin (Arguedas and Duviols 1966: 255-256; Arriaga 1968: 28, 68; Duviols 1967: 20). These idols were also often referred to as “relatives,” with or without specific names (Mills 1997: 80-82). As heirlooms and ritual objects, chanca idols were passed down from elders to younger blood relations, usually along patrilineal lines. It is noteworthy that indigenous Andean people could be quite protective of their family gods. They were reluctant to relinquish them or divulge their

Table 51.1. Schematic representation of graded relationships and qualities among ancestral forms during Inca and colonial times. Parentheses indicate with exceptions.

Ancestral form	Huaca	Mallqui	Chanca – conopa – con churi
general size	(large)	corpse-sized	small
common form	(mountain, outcrop)	bundle	(stone)
venerating group	macro-group	lineage	family
domain of efficacy	regional	community	domus
circulation	(stationary)	semi-portable	portable
exposure	public	seasonal	private
kinship/distance	distant	closer (known)	close

whereabouts to the Spanish clergy, even in the face of severe punishment. While household idols may have simply been more accessible and intimate sources of superhuman favor (Mills 1997: 78-93), one also wonders to what degree Andeans clung to them after the greater idols were destroyed (see Doyle 1988: 66).

Ancestral images during colonial times shared in a series of unequal relationships or capacities (Table 51.1), which seem, ultimately, to have articulated concerns about scale, place and supernatural reach. At the apex of potency were the huacas, those superhuman beings who were worshipped at a local as well as regional scale, and were usually associated with fairly immobile features of the landscape. Then there were mallquis, who were mummies of recent deceased, also associated with the landscape, typically with their repositories identified as origin places, such as caves (machays) or tombs (chullpas). Then there were the personal/family divinities, who were highly specific, portable, concealable and largely private. These stayed with the person or in the houses of their keepers.

Perhaps the most salient point is the wide variability in the scale, form and qualities, which Andeans attributed to ancestral beings. Four centuries ago, Arriaga (1968: 11) discussed their diversity and mutability, saying: “the Indians recognize deities in small things, for it is known that these figures and stones are images representing hills, mountains and riverbeds, or even their progenitors and forebears, whom they invoke and worship as their creators and from whom they expect well-being and happiness”.

POSSESSIONS

Andean ancestor veneration involved a belief in the inalienable possessions of ancestral figures, for huacas and mallquis often held their own lands and herds. These furnished products for sacrifices and offerings, such as llamas, maize for chicha, and even coca leaf (Duviols 1986: 225). In many cases, production for the ancestors was managed by ministers and attendants, usually direct descendants of the revered ancestor (Duviols 1986: 70). Valuables and offerings (shell, metals, textiles, etc.) made to the huacas or curated by the huacas’ priests were also part of the huacas’ estate. Not surprisingly, colonial inquisitors plundered huaca properties systematically during their inspections.

As the new Spanish regime came crashing down on them, indigenous people began to emphasize ancestor cults at least partly to reassert binding ties to progenitors. Colonial documents indicate that ancestors were crucial for reckoning group identity and

descent-based inheritance rights (Salomon 1995: 321; Zuidema 1973: 26). Each corporate group venerated its own huacas and ancestor mummies. Oral traditions linked these figures to places of origin (pacarinas) and to memorable deeds (establishment of fields, villages, canals, etc.), which pinpointed and laid claim to geographical landmarks and features. In short, ancestor idols helped mark/anchor the territories and constituencies of kin-based collectivities (e.g., Hernández Príncipe 1923).

By destroying ancestor images and tombs, extirpators effectively sought to erase the traditional links between person and livelihood. The language of the campaigns was explicitly aimed at “uprooting” and “plowing” native faiths so that Christianity could be “planted” (Arriaga 1968: 21,68,80). The language alludes to the obdurate telluric basis of ancestor cults and also to disenfranchisement of sources of native wealth: land and labor. This can be seen in Arriaga’s (1968: 63) statement about native beliefs: “each Indian faction and clan has its separate origin and pacarina. This they call by a private name and invoke, worship, and offer sacrifices to, calling it camac, which means creator. Each one says he has his own creator. Some say it is a hill, others a spring...this is why the Indians are so pertinacious and stubborn in preserving their sites and ancient towns and in returning to them after they have been consolidated with other towns [the Colonial “reduccion” or resettlement of natives]. They regard them as their fatherland and pacarina”.

Even with the politico-demographic upheavals wrought by missionization and compulsory resettlement, ancestors proved difficult to eradicate, for they linked groups inextricably to their lands and their fertility. In a number of cases, Indians exhumed loved ones from church cemeteries and re-located them in prehistoric tombs or near their fields so that their forebears could find “rest” and reassume their roles as tangible advocates and agents of fertility for their descendants (Arriaga 1968: 56; Duviols 1986: 72, 90, 92).

ANIMACY AND GENERATIVE CAPACITY

Many Andean religious beliefs centered on the principle that people, animals, and objects were infused with an animating life-force or essence. That essence was called *camaquen* or *upani* (Duviols 1978: 132; Taylor 1976: 233). Although chroniclers likened it to the Christian concept of “soul,” it seems best approximated as a type of life energy or “forceful spirit” (Salomon 1995: 323). But *camaquen* also described a manifested image of the essence (Duviols 1978: 133-134). Thus, sorcerers could target a *camaquen* to hurt or kill the original (Rostworowski 1988: 10). Other recorded native voices spoke of worship of gold *camaquen* images of venerated ancestors (Duviols 1968: 70). The life-force, even when the original was alive, could be mobile and mobilized. I think that most ancestor images served as sacred containers/receptacles for animating energies.

Some of the best known effigies are from Inca times (van de Guchte 1996). Various chroniclers noted that Inca kings, nobles, and men of high standing fashioned simulacra of themselves, called *huauque* or brother (e.g., Cobo 1990: 37-38). These doubles were worshipped and treated as if they were the original, during the person’s lifetime. They were adorned in finery, supplied from their own fields by their servants, and were the focus of sacrifices and offerings.

Not all *huauque* statues duplicated the physical shape or likeness of the prototype. For example, the statue of Manco Capac had an avian form, while that of Sinchi Roca was

said to be in the form of fish or serpent (van de Guchte 1996: 259-263). The great colonial Spanish expert on native religion, Bernabé Cobo (1990: 37), observes, "Some made the statue large; others made it small; still others [Inca nobility] made it the same size and shape as themselves. Some of the statues were made of gold, others of silver, wood, stone, and other materials".

Regardless of form, these effigies possessed the potency of the prototype and could serve as his representatives and companions. The statues were vital participants in processions, oracular functions, or rites to bring forth rain. They would also be displayed during battles to bring morale to Inca warriors and generate fear among enemies. The huauque was buried with the person, and continued to receive the same treatment, as an esteemed forbear, in the afterlife.

Just as effigies were potent images, the parts and remains of sacred persons and things were revered, like saintly relics in early Christianity. Thus, a bone, sherd, feather, or wrapping could be important, as still potent parts or elements of the whole. For example, ashes or remains of burned idols could be salvaged and revived into new cult items (Arriaga 1968: 25). Body exuviae, such as hair and fingernail clippings, were often integrated into effigies because they contained the essence of the original person (Betanzos 1996: 205). Various native testimonies recount the incorporation of hair and clippings in the making and worship of mallqui mummies (Duviols 1986: 157, 198), or as sacred objects in their own right (Avila, in Arguedas and Duviols 1966: 256). The use of exuviae in such cult practices resonates with a basic connection to human growth and the capacity of progenitors to promote fertility.

The potential for growth also underscores the diverse references to eggs in early colonial documents. For example, Pariacaca, the apical huaca for the peoples of highland Lima (Huarochirí), was said to have been birthed in the form of five eggs, which developed into five falcons, who in turn represented the five brothers that constituted the divinity (Kemper Columbus 1990; Salomon and Urioste 1991). In other references, idols were often described as simple round objects of stone or metal, in the form of eggs, which sometimes had the capacity to glow (Duviols 1986: 7, 14, 247).

Similar qualities apply to mallquis – conceived as "young plants for planting" [e.g., seedlings] or "fruit trees" in Quechua (Holguin 1989: 224; Sherbondy 1988). It has been noted how mummy bundles were, in fact, akin to seeds (Frame 1995: 14). Bundles were carefully placed in the ground, often with others of same type – i.e., corresponding to lineages or families (see also Duviols 1979: 22) (Figure 51.2). In periodic ceremonies, bundles would be retrieved from their repositories and provided with another cloth wrapping. Thus a new layer of growth was added by means of the labor, offering, and devotion of descendants. The veneration of mummies through wrapping was therefore a ritual of renewal. This practice goes back at least to Paracas times (see discussion of the Paracas burial grounds in Chapter 29 in this volume).

It is worth noting that such practices did not simply emphasize fertility, but also a kind of directed growth or emergence from an ancestral form. This quality seems to parallel what scholars have identified as the generative power (*camac*) of creator divinities, who have specific domains of efficacy (Salomon 1991; Taylor 1976). Such potency enabled small conopa effigies of maize, potatoes, or llamas to increase numbers of their own species (Duviols 1986: 415). The relationship between human progenitors and descendants functioned on the same procreative, like-from-like principle. An ancestor effigy is therefore an image of the prototype, and also its distributed product.

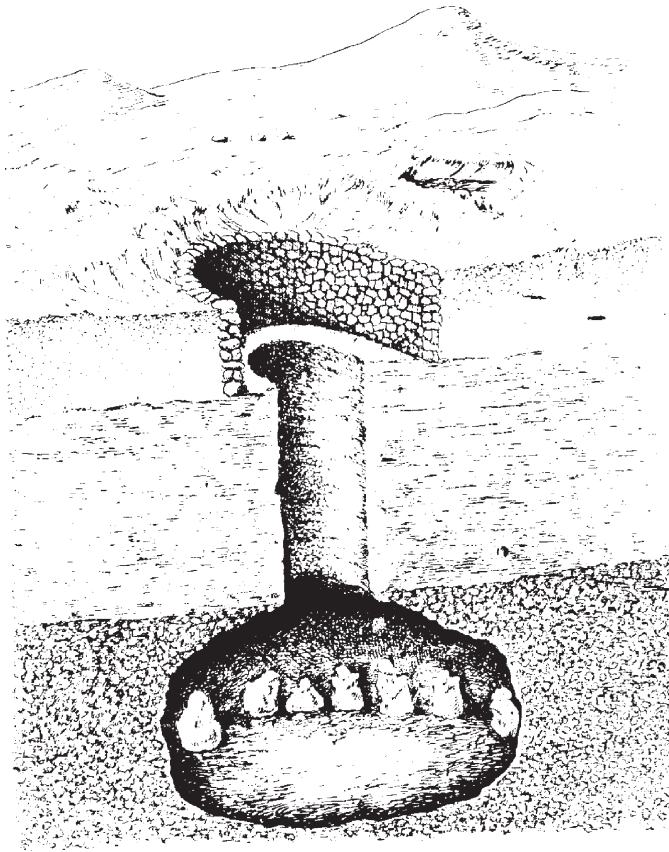


Figure 51.2. Cavernas tomb at Paracas (ca. 400 BC–AD 1). Mummy bundles were placed huddled together in the subterranean chamber, and consisted of flexed bodies wrapped with multiple layers of cloth. (After Tello 1929: fig.78).

INTERACTIVE IMAGES

It remains challenging for archaeologists to discern how supposedly inert things transform into intermediaries for the supernatural. One way of probing this problem is by rephrasing the question, “How did Andeans envision ancestors as perceiving?” Asking this question allows us to consider why the living constructed and managed ancestors in the ways they did.

With the exception of Naymlap’s green idol in late pre-Hispanic north coast mythology (Rowe 1948: 32–33), it remains uncertain whether earlier Andean peoples made huauque-like images. Effigies appear throughout the archaeological record, especially in mortuary contexts, but it is not always clear whom they represent.

Over seven millennia before the Incas, Andeans were already making elaborate human effigies for use in interactive ceremonies. The Chinchorro mummies of northern Chile, ca. 5000–2000 BC (see Chapter 3 in this volume) are remarkable for their complex techniques of mummification, including of subadults who, physically, could not be biological progenitors. Masks animated the effigy, and skin and hair were recycled for an effigy’s

wrapping and wig. Before interment, usually in groups, there were repeated episodes of handling and display, as indicated by wear. Elaborate burials in other regions of the Andes suggest that there were already widespread, if diverse, preoccupations with the afterlife and regeneration by pre-ceramic times (Quilter 1989: 83).

Throughout Andean prehistory, societies paid great attention to the heads of anthropomorphic figures. The head is the physical source of cognition and (facial) identity, but it is also the primary locus where the effigy can be perceived to sense and interact with the world. Thus, it is the head that consumes food and drink offerings (orally and olfactorily), displays the headdress and earspools, and hears the sounds of celebration. Perhaps most important, it is through the eyes that the representation can perceive visually. It follows that eyes on ancestor effigies are frequently oversized, elaborated and wide open (Lau 2002: 297). That sockets were commonly inset with valuable materials (rare stones, metal or shell) also stresses that eyes formed vital loci for interaction with ancestors.

Faces and masks featured prominently in ancestor imagery. Faces are the canvas for likenesses; but masks were powerful objects in their own right. Indeed, masks were made to act as surrogates for idols destroyed by Spanish inquisitors (Duviols 1986: 161). Some pre-Columbian funerary masks were quite elaborate, such as for central coast mummies – fabricated from wood, shell, feathers and cloth (Kaulicke 1997). Others could be simple facial elements woven onto textile bundles (Kauffmann Doig and Ligabue 2003). It might be surmised that endowing the idol with a countenance animates and gives identity to the divinity.

Sculpted monoliths also were central to ancestor cults, notably in the Recuay tradition, AD 1–800, of the north Peruvian highlands. Freestanding or engaged as elements on the walls of special buildings, the sculptures were monuments that commemorated deceased individuals (Lau 2000:196). Human figures are portrayed frontally – with eyes open and facing forward. Some sculptures marked underground tomb chambers (Mejía Xesspe 1941:23). Several monoliths, showing a female-male pair, were encountered at Chinchawas on either side of an entrance stairway into a room complex (Figure 51.3). Other anthropomorphic sculptures at Chinchawas adorned chullpa structures, which probably held mummy bundles, and enclosures for festive gatherings (Lau 2002). Overall, the crucial purpose of Recuay sculptures was to create sacred spaces in which esteemed (lithified) individuals were incorporated permanently as observers and participants.

In the Chachapoyas region of northeastern Peru, late pre-Hispanic ancestor veneration took durable form in imposing cliff-ledge sculptures (Figure 51.4; see Chapter 45 in this volume). Standing upright and in groups, the sculptures were elaborate sarcophagi to house flexed corpses; they have been likened to mummy bundles (Kauffmann Doig and Ligabue 2003: 207–220). Predictably, heads are their most accentuated feature. The rest of the sculpture is a limbless container, round or cylindrical, for the body. In addition to those where the head is placed atop the container, others have heads located on various parts of the sarcophagi, literally extruding out.

Tenon-heads on chullpas and on other funerary structures, especially in the north highlands (Wiener 1993:179,181), may be considered growths or protuberances from the building, rather than simple add-ons (Figure 51.5). At once the repository for deceased kin and the embodiment of corporate social relations (in terms of descent and labor), the chullpa mausoleum forms the logical vessel for regeneration.

For Inca groups, Sillar (1996: 280) argues that the process of preserving tubers is essentially analogous, in technique and language, to the treatment of the dead. Like chuño (freeze-dried tubers), corpses dry and harden through dessication and storage in special structures: collcas for tubers, chullpas for mummies.

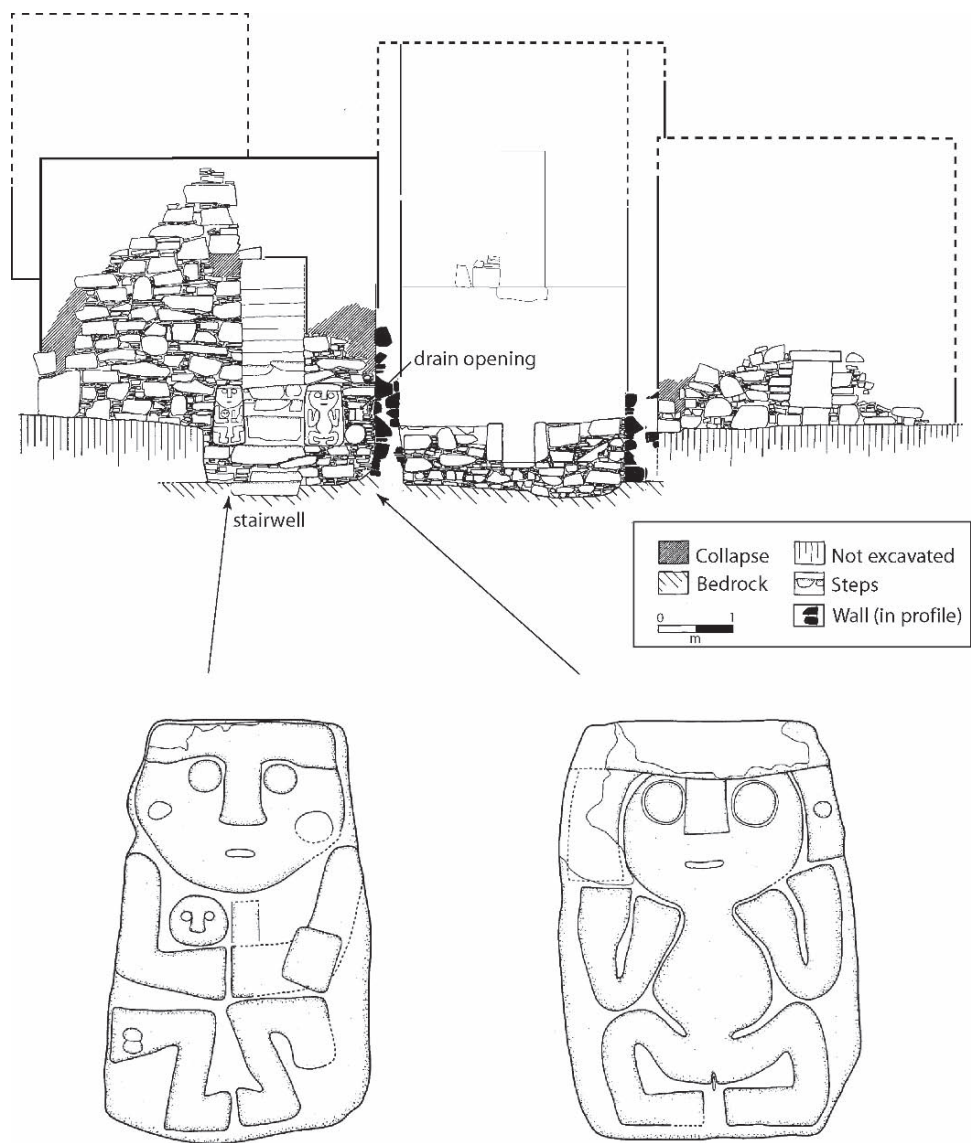


Figure 51.3. Recuay tradition sculptures at Chinchawas (AD 500–800), set on either side of a stairway. The right sculpture (west), next to a water drain, depicts a female splayed anthropomorph, while the left monolith (east) depicts a male warrior figure. (George Lau)

Ancestor images were made at multiple scales. Uceda (1997) describes remarkable offerings from Chimú period (AD 1100–1450) tombs at Huaca de la Luna. Small wooden human figurines (10–20 cm tall) perform ancestor veneration rites, depicting processions with a mummy bundle, leading of prisoner and llama sacrifices, and presentation/reception of gifts and drink. One scene unfolds within a model of a richly detailed enclosure, where handsomely attired figures surround a seated mummy to make offerings of gifts, while others observe solemnly (Figure 51.6).

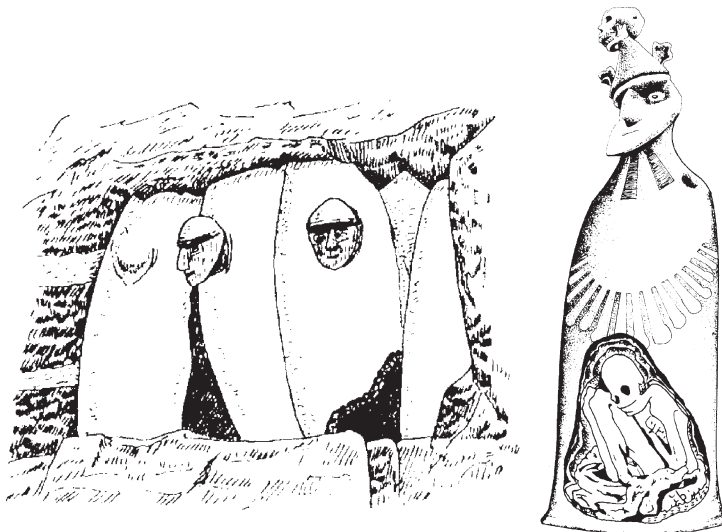


Figure 51.4. Chachapoyas cliff sculptures, which were elaborate containers for flexed corpses, ca. AD 800–1500. The attention given to the heads/faces contrasts with the relatively plain treatment of the body. (After Kauffmann Doig and Ligabue 2003: 208, 229).



Figure 51.5. North Highlands tenon heads with human faces, Recuay tradition (AD 1–800). Top, from Pashash. (After Wiener 1880: 179, 181). Bottom, from Museo Arqueológico de Ancash, Huaraz, ca. 45 cm long. (photo: George Lau).

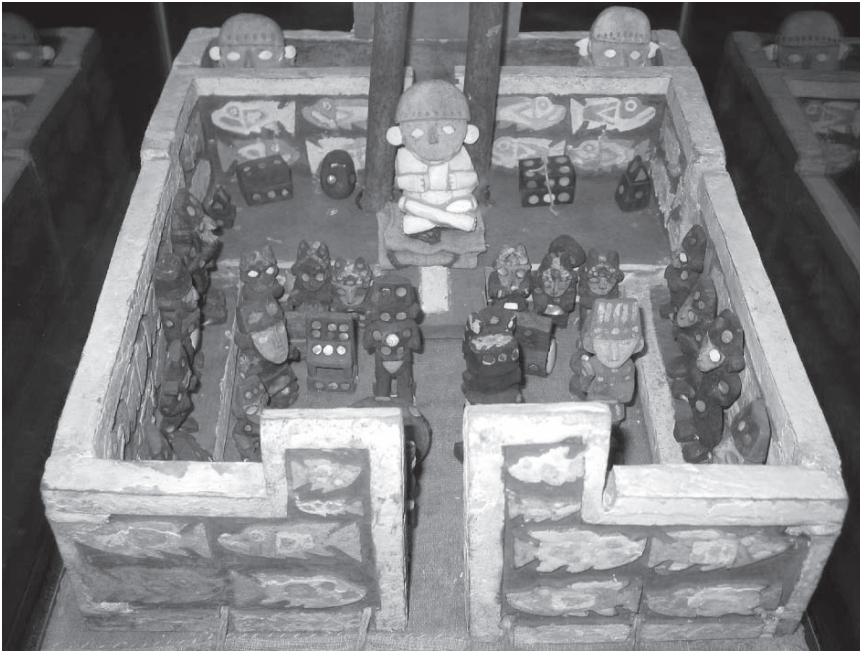
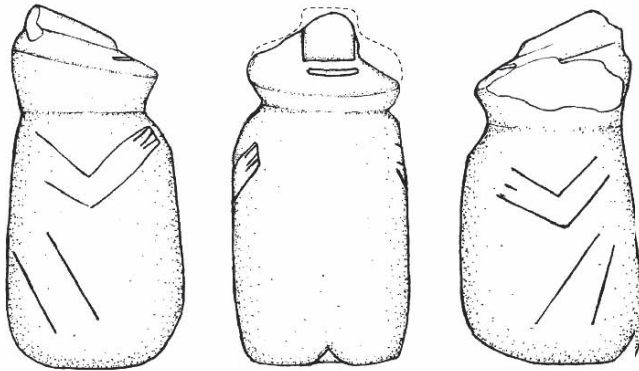


Figure 51.6. Chimu architectural model, showing ancestor veneration scene, ~ 40 cm long, AD 1100–1450. Note the figures holding gifts and cups. These small figures resemble large wooden images set into wall niches of great enclosures at Chan Chan. Such figures are probably effigies of important deceased individuals, who watched over the activities within enclosure. Museo de Arqueología, Antropología e Historia, Universidad Nacional de Trujillo. (photo: George Lau)

Ultimately, it is unclear what the models and figurines were used for: were they playthings, devices to reenact or rehearse ceremonies, or miniature surrogates of the persons involved? The offerings are remarkable, however, because they depict, in miniature, ceremonies that took place centuries before the conquest, almost identical to those reported in highland communities during early colonial times. Further, the miniature scenes duplicate the central activities portrayed on Recuay funerary effigy vessels, which predate Chimú by some 500 years (Carrión Cachot 1955: lám.15-18). Notably, some of the figurines resemble larger-sized figures known from Chimú sites, which were located in enclosures and tomb chambers (Schaedel 1951), as permanent attendants and eyewitnesses.

Portable effigies also were made in stone (see, e.g., Cook 1992). Recuay ancestor sculptures were usually near life-size, but at Chinchawas, a small carving of a mummy bundle was encountered (Figure 51.7). Its features resemble larger statues: mask-like face with prominent jaw, and seated, tucked disposition.

Elaborate human figurines become more common by the first millennium AD, just as new forms of political authority and funerary art burgeoned across the Andes (DeLeonardis and Lau 2004). In particular, representations of well-attired dignitaries became increasingly widespread in elite burial practices (e.g., Moche, Gallinazo, Nasca, Jama-Coaque). The exact identification of the figurines eludes us, but it is probable that they are effigies of important personages. Partly this is because of their focus on individuality, marked especially by their distinctive physical features, headdresses and clothing (Bourget



front

Figure 51.7. Recuay stone effigies of seated mummy figures, which were probably wrapped in elaborate textiles (see Lau 2000: fig. 9). Top, full-sized Recuay mummy sculpture, height ~ 80 cm. Museo Arqueológico de Ancash, Huaraz. Bottom, miniature Recuay carving found at Chinchawas, 6.5 cm tall. (photo and drawing: George Lau)

2001; Donnan 2004; Rowe 1990), but also because of their role as special burial offerings or stand-ins for the deceased. In the Recuay case, some figurines occur as pairs, reiterating the importance of female-male unions (Gero 1999: fig.12a-b). In later times, Chancay figurines are sometimes wrapped within funerary bundles (Morgan 1996), like personal companions. Again, such figurines might be representatives accompanying the deceased as well as providing the appropriate audience for commemorative ceremonies.

CONCEALMENT AND DISPLAY

Throughout the Andes, certainly over the last five hundred years, dead things share the attributes of being hard, dry and durable (Allen 1982; Salomon 1998: 11). Through stone effigies, ancient Andeans made permanence and centrality explicit themes in ancestor ritual. Ethnohistoric documents often elaborate on the propensity of certain figures, especially those of a mytho-historical past, to turn into stone (Duviols 1977). Ancestral 'lithomorphosis' took form in outcrops, boulders or large uprights (huancas). For Duviols (1979), monoliths (above ground) and mallqui mummies (subterranean) are complementary manifestations of ancestors, in a cyclical relationship compared to reproduction and agriculture.

Ancestor sculptures were often boldly displayed as incontrovertible landmarks of ancestry. Recuay sculptures adorn tombs and entryways to important buildings. Other monoliths are consistent with testimonies that huanca uprights acted as vigilant stewards and tutelary figures for fields and settlements (Duviols 1979: 9). Stone sculptures of the San Agustín area, in Colombia's southern highlands, were likely parts of elaborate funerary cults (see Chapter 21 in this volume) not unlike those of the Central Andes. Large monoliths depicting anthropomorphs occur commonly in cemeteries, as freestanding guardian figures or atlantean supports for megalithic tombs (Reichel-Dolmatoff 1972). While supernaturals and beings related to shamanic practices are portrayed, many sculptures also appear to commemorate important deceased (Figure 51.8). Interestingly, many of the themes treated in San Agustín sculpture have distinctive Central Andean analogues, such as presentation of small figures and drinking cups (Recuay, Chancay, Chorrera), skeletal figures (Moche, Wari, Pukara), and animal companions/alter-egos (Paracas, Cupisnique). San Agustín monuments, it seems, followed general Andean cultural dispositions, which perceived, and valorized in funerary art, death as a source of renewal/fertility (e.g., Donnan 1978; Silverman and Proulx 2002; Weismantel 2004).

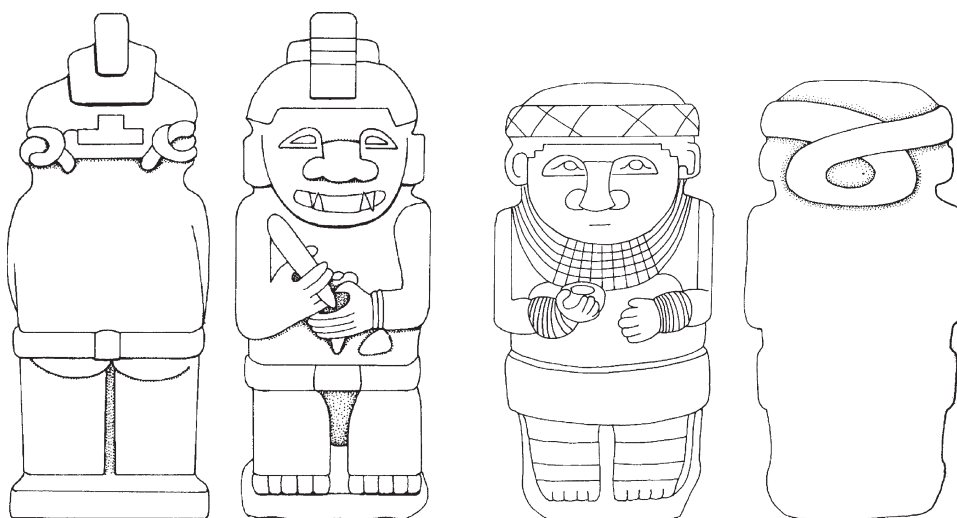


Figure 51.8. Sculptures from San Agustín area, southern Colombia, first millennium AD. Left, standing figure, Uyumbe, 160 cm tall. Right, standing figure with cup, Alto de Los Idolos, 138 cm tall. (Redrawn after Sotomayor and Uribe 1987: 134, 164)

Some anthropomorphic images were the foci of specific religious activities, implied by their central physical context. In the Titicaca Basin at the end of the Early Horizon, Yaya-Mama tradition stone images were featured prominently in sunken courts or atop hills, including monumental stele. Tall vertical slabs depicted male and female images, probably ancestral pairs, and are often back-to-back on the same monolith (Chávez and Mohr-Chávez 1975); the male side apparently faced east, while the female side faced west (Arriaga 1968: 79). It should be noted that male/female pairs are also prominent in Recuay tradition sculpture (Tello 1929: 76), with similar east-west associations (Figure 51.3). Perhaps most relevant, both contexts openly showcase the centrality and autonomy of the images.

Other images were hidden until the appropriate time for their display. Concealment of some ancestor effigies was important to make purposefully periodic manifestations of divinity. During the second millennium BC, effigies of ancestral supernaturals, merging human and animal attributes, were manipulated in closed, episodic rites atop the U-shaped centers of the Manchay tradition. Through their revelation and performance, such objects animated mythic narratives for early agricultural societies of the central coast; their strangeness and rarity of presence heightened the drama (Burger and Salazar-Burger 1998: 49-51).

Episodic displays also characterize the celebration of mummy bundles. Mummies were brought out for display only at certain times of the year; otherwise, the bundles huddled amongst themselves inside chullpa and cave repositories. Revealing and wrapping the bundle alternated as part of the cycle of concealment: the textile veiled the mortal remains at the same time that it constructed/exposed the divinity.

In colonial times, concealing sacred objects also had the benefit of keeping them safe from church officials. Stone chancas were hidden atop shelves, near beds, in niches and alcoves, and on one's person (Mills 1997: 80, 83, 88); they were also hidden within ceramic pots or small bags, to appear when needed.

CLOSE RELATIONS

Because ancestor veneration is generally the purview of kin groups, there is often an intimate relationship between cult images (ancestors) and their makers and users/handlers (descendants). Indeed, the colonial documents suggest that effigies, especially mummy bundles, were treated essentially like esteemed family members. And like close relations, endeavoring to satisfy their need for attention and nourishment operated under an implicit accord of reciprocity. Care for them obliged continued goodwill.

For one thing, ancestors demanded food, drink and sacrificial offerings. Mallqui and huaca ceremonies were periodic, sometimes large-scale corporate affairs around the sowing and harvest seasons. Typical offerings included coca and chicha maize beer. It also was customary to dispatch guinea pigs and llamas in front of them; sometimes blood would be splattered on the ground, idols, clothes and the surroundings. Other sacrifices included textiles, metal objects, shell, coca, animal fat, and ground powders. The time of the ceremonies frequently meant a number of prohibitions: abstention from sex as well as certain foods, such as salt or chili peppers. Trumpets were used to announce the ancestors and ceremonies; drums, dancing, and chants, which extolled their deeds and virtues, also enlivened ancestor festivities.

Another way to please ancestors was to offer and dress them in new wrappings—often of the finest textiles (Arriaga 1968: 27). It is an Andean anthropological orthodoxy that cloth is a basic unit of exchange within and between families and kin groups and a

source of identity and cultural affiliation. But wrapping another also connotes basic familial concerns and care. It is this affection—their “cuyaspa, or the love they bear [their idols, ancestors]” —which Arriaga (1968: 18) targeted in his attacks on native Andean faiths.

The wrapping of conopas, idols and mallquis expressed Andean devotion to ancestors (Arguedas and Duviols 1966: 256; Arriaga 1968: 11; Duviols 1967: 30, 398; Millones 1979: 249). Such practices extended personal qualities to the object, but also emphasized its need to be nurtured. Rewrapping ancestors was not simply a dedication of fine cloth, or a gift of labor and investment. It was an obligation, an inherited responsibility from forebears, for they had hitherto provided food and clothes (e.g., Duviols 1986: 70, 105).

The Paracas mummy bundles (ca. 400 BC–AD 200) are notable because so much cultural investment went into them; they were “hills of cloth” (Paul 1990: 116). It seems reasonable to suggest that the layering of cloth wrappings resulted from the contributions of certain groups at different points in time; but they also commemorated social relationships by ossifying, in textiles, a specific set of interpersonal obligations fulfilled. Thus the bundle—here a person as well as monument—is prone to grow. Curiously, the making of a mummy bundle is not much different, then, from the reiterative construction of early Andean ceremonial architecture, such as the U-shaped centers of the central coast or the central hearth structures of the Kotosh Religious Tradition. They take form through episodes of directed growth, incremental layering, and corporate commitment.

Effigies also performed consultations and oracular functions (e.g., Duviols 1986: 142). For other cultures, ancestors are convened because, as elders and wise beings, they are highly appropriate guests for overseeing decision-making events, such as for transmission of property (Ghana) and for consultation in war (Maori). In the Andes, ancestors’ guidance and favor were sought especially concerning matters of water and fields. There was protocol and hierarchy in consultations; worshippers needed to receive the approval of household elder gods before apical ancestor figures could be consulted (Salomon 1991: 17). Consultations appear to be a key theme in some Recuay ceramics featuring a large central figure surrounded by lesser ranking attendants (e.g., Lau 2000: fig.4) or in the Chimú model previously described. Supernatural advice and backing must have been highly desirable for descendants.

One final characteristic of Andean ancestor images is that they are commonly found in groups. As might be expected, ancestor effigies form their own collectives. We have already seen ancestral pairings on buildings and monoliths and sarcophagus groups along cliffs. It is said that the effigies of Inca kings were placed at opposite ends of a room in Coricancha (the Temple of the Sun), all facing a golden image of the sun (van de Guchte 1996: 258). Mummy bundles shared space in chullpa tombs (e.g., Marcoy 1875: 78). It has been suggested that the physical position of the effigies paralleled descent lines (Zuidema 1973: 21). Clusters of chullpas across the Andes were quite literally necropoli: dense communities of the dead. By colonial times, when officials outlawed celebration of idols and mummies in the open, families set out furtively to the caves and chullpas to be with their restless, gregarious forebears.

CONCLUSION

This chapter has examined ancient religious practices and beliefs in the Andes, with a broad focus on the durable idols of ancestor cults. Ethnohistoric and historic accounts provide a range of possibilities by which archaeologists can contextualize pre-Columbian

objects and settings. The perspective I advocate examines what people did around Andean images and stresses how *things* were perceived as *social others*.

Two basic points should be recapitulated. First, ancestor images are like persons: they actively embody social relationships and mediate physical interaction between the living and ancestral divinity. I have described what some ancestors could move people to do. Ancestor images were not simply static representations or symbols, but objects that were actively handled, used and re-imagined for specific purposes, frequently over long periods of time.

Second, many Andean ancestor images were crucial because they were like esteemed relatives. Effigies were agents by which the potency of deceased forebears could continue to be channeled for the benefit of worshippers. The available evidence strongly suggests that the language used to describe the images, the contexts for their storage/veneration, and their physical interactions followed tropes of family and descent (real or fictive). Ancestors were venerated because, like close relations, descendants had obligations to them. Cult images drew life from and prolonged this commitment.

ACKNOWLEDGMENTS Fieldwork at Chinchawas was conducted under Resolución Directoral Nacional 419-96/INC, and was supported by the National Science Foundation (SBR-9612574) and the Wenner-Gren Foundation for Anthropological Research (No. 6066). Additional research funding, enabling many of the arguments presented here, has been provided by the British Academy and the Sainsbury Research Unit. I would like to thank Ludo Coupaye, Steve Hooper and various SRU students for helping me to think through some ideas about ancestral things; any errors remain my own.

NOTE

1. Fewer studies exist for ancestor practices in the northern and southern stretches of the Andes (e.g., Eckert 1948; Faron 1961; Steward 1946), and even less is known about Amazonia (but see Chapter 50 in this volume).

REFERENCES

- Allen, Catherine J., 1982, Body and soul in Quechua thought. *Journal of Latin American Lore* 8: 179-196.
- Arguedas, José María and Pierre Duviols (eds.), 1966 [1598?], *Dioses y Hombres de Huarochirí: Narración Quechua Recogida por Francisco de Avila*. Instituto de Estudios Peruanos, Lima.
- Arriaga, Pedro J. de, 1968 [1621], *The Extirpation of Idolatry in Peru*. University of Kentucky Press, Lexington.
- Arriaza, Bernardo, 1995, *Beyond Death: The Chinchorro Mummies of Ancient Chile*. Smithsonian Institution Press, Washington, D.C.
- Betanzos, Juan de, 1996 [1557], *Narrative of the Incas*. University of Texas Press, Austin.
- Bloch, Maurice and Jonathan Parry, 1982, Introduction: death and the regeneration of life. In *Death and the Regeneration of Life*, edited by Maurice Bloch and Jonathan Parry, pp. 1-44. Cambridge University Press, Cambridge.
- Bourget, Steve, 2001, Rituals of sacrifice: its practice at Huaca de la Luna and its representation in Moche iconography. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 89-109. National Gallery of Art, Washington D.C.
- Burger, Richard L. and Lucy Salazar-Burger, 1998, A sacred effigy from Mina Perdida and the unseen ceremonies of the Peruvian Formative. *Res* 33: 28-53.
- Carrión Cachot, Rebeca, 1955, El culto al agua en el antiguo Peru: la paccha, elemento cultural pan-andino. *Revista del Museo Nacional de Antropología y Arqueología* 2: 50-140.
- Chávez, Sergio, and Karen Mohr Chávez, 1975, A carved stela from Taraco, Puno, Peru, and the definition of an early style of stone sculpture from the altiplano of Peru and Bolivia. *Nawpa Pacha* 13: 45-83.

- Cobo, Bernabé, 1990 [1653], *Inca Religion and Customs*. University of Texas, Austin.
- Cook, Anita G., 1992, Stone ancestors: idioms of imperial attire and rank among Huari figurines. *Latin American Antiquity* 3: 341-364.
- Cummins, Tom, 2003, Nature as culture's representation: a change of focus in Late Formative iconography. In *Archaeology of Formative Ecuador*, edited by J. Scott Raymond and Richard L. Burger, pp. 423-464. Dumbarton Oaks Research Library and Collection, Washington D.C.
- DeLeonardis, Lisa, and George F. Lau, 2004, Life, death and ancestors. In *Andean Archaeology*, edited by Helaine Silverman, pp. 77-115. Blackwell Publishers, Oxford.
- Dillehay, Tom D., 1995, Mounds of social death: Araucanian funerary rites and political succession. In *Tombs for the Living: Andean Mortuary Practices*, edited by Tom D. Dillehay, pp. 281-313. Dumbarton Oaks Research Library and Collection, Washington D.C.
- Donnan, Christopher B., 1978, *Moche Art of Peru: Pre-Columbian Symbolic Communication*. UCLA Museum of Cultural History, Los Angeles.
- , 2004, *Moche Portraits from Ancient Peru*. University of Texas Press, Austin.
- Doyle, Mary E., 1988, Ancestor Cult and Burial Ritual in Seventeenth and Eighteenth Century Central Peru. Ph.D. dissertation. Department of History, University of California, Los Angeles.
- Duviols, Pierre, 1967, Un inédit de Cristóbal de Albornoz: la instrucción para descubrir todas las guacas del Piru y sus camayos y haziendas. *Journal de la Société des Américanistes* 56: 7-39.
- , 1977, Un symbolisme andin du double: la lithomorphose de l'ancêtre. *Actes du XLIIe Congrès International des Américanistes* 4: 359-364.
- , 1978, Camaquen upani: un concept animiste des anciens Peruvians. *Collectanea Instituti Anthropos* 20: 132-144.
- , 1979, Un symbolisme de l'occupation, de l'aménagement et de l'exploitation de l'espace: la monolithe 'huanca' et sa fonction dans les Andes préhispaniques. *L'Homme* 19: 7-31.
- , 1986, *Cultura Andina y Represión: Procesos y Visitas de Idolatrías y Hecherías Cajatambo, Siglo XVII*. Centro de Estudios Rurales Andinos "Bartolomé de las Casas," Cuzco.
- Eckert, Georg, 1948, *Totenkult und Lebensglaube im Caucatal*. Verlag Albert Limbach, Braunschweig.
- Faron, Louis C., 1961, On ancestor propitiation among the Mapuche of central Chile. *American Anthropologist* 63: 824-830.
- Frame, Mary, 1995, *Ancient Peruvian Mantles, 300 B.C. - A.D. 200*. Metropolitan Museum of Art, New York.
- Gell, Alfred, 1998, *Art and Agency: An Anthropological Theory*. Clarendon Press, Oxford.
- Gero, Joan M., 1999, La iconografía Recuay y el estudio de género. *Gaceta Arqueológica Andina* 25: 23-44.
- Glowacki, Mary and Michael Malpass, 2003, Water, huacas, and ancestor worship: traces of the sacred Wari landscape. *Latin American Antiquity* 14: 431-448.
- Hastorf, Christine A., 2003, Community with the ancestors: ceremonies and social memory in the Middle Formative at Chiripa, Bolivia. *Journal of Anthropological Archaeology* 22: 305-332.
- Hernández Príncipe, Rodrigo, 1923, Mitología andina - idolatrías en Recuay. *Inca* 1: 25-78.
- Holguin, Diego, 1989, [1608] *Vocabulario de la lengua general de todo el Peru llamada lengua Qquichua o del Inca*. UNMSM, Lima.
- Isbell, William H., 1997, *Mummies and Mortuary Monuments: A Postprocessual Prehistory of Central Andean Social Organization*. University of Texas Press, Austin.
- , 2004, Mortuary preferences: a Wari culture case study from Middle Horizon Peru. *Latin American Antiquity* 15: 3-32.
- Kauffmann Doig, Federico, and Giancarlo Ligabue, 2003, *Los Chachapoya(s)*. Universidad Alas Peruanas, Lima.
- Kaulicke, Peter, 1997, *Contextos Funerarios de Ancón: Esbozo de una Síntesis Analítica*. Pontificia Universidad Católica del Perú, Lima.
- , 2001, *Memoria y Muerte en el Perú Antiguo*. Pontificia Universidad Católica del Perú, Lima.
- Kemper Columbus, Claudette, 1990, Immortal eggs: a Peruvian geocracy; Pariaqaqa of Huarochiri. *Journal of Latin American Lore* 16: 175-198.
- Kühler, Suzanne, 1987, Malangan: art and memory in a Melanesian society. *Man* 22: 238-255.
- Lau, George F., 2000, Espacio ceremonial Recuay. In *Los Dioses del Antiguo Perú*, edited by Krzysztof Makowski, pp. 178-197. Banco de Crédito, Lima.
- , 2002, Feasting and ancestor veneration at Chinchawas, north highlands of Ancash, Peru. *Latin American Antiquity* 13: 279-304.
- MacCormack, Sabine, 1991, *Religion in the Andes: Vision and Imagination in Early Colonial Peru*. Princeton University Press, Princeton.

- Marcos, Paul, 1875, *Travels in South America from the Pacific Ocean to the Atlantic Ocean*. Blackie, London.
- Mejía Xesspe, Toribio, 1941, Walun y Chinchawas: dos nuevos sitios arqueológicos en la Cordillera Negra. *Chaski* 1: 18-24.
- Millaire, Jean-François, 2004, The manipulations of human remains in Moche society. *Latin American Antiquity* 15: 371-388.
- Millones, Luis, 1979, Religion and power in the Andes: idolatrous curacas of the central sierra. *Ethnohistory* 26: 243-263.
- Mills, Kenneth, 1997, *Idolatry and Its Enemies: Colonial Andean Religion and Extirpation, 1640-1750*. Princeton University Press, Princeton.
- Morgan, Alexandra, 1996, Pre-Columbian Pottery Figurines of the Central Coast of Peru. Ph.D. dissertation. University College London.
- Paul, Anne, 1990, *Paracas Ritual Attire: Symbols of Authority in Ancient Peru*. University of Oklahoma Press, Norman.
- Quilter, Jeffrey, 1989, *Life and Death at Paloma: Society and Mortuary Practices in a Preceramic Peruvian Village*. University of Iowa Press, Iowa City.
- Ramírez, Susan E., 1996, *The World Upside Down: Cross-Cultural Contact and Conflict in Sixteenth Century Peru*. Stanford University Press, Palo Alto.
- Reichel-Dolmatoff, Gerardo, 1972, *San Agustín: A Culture of Colombia*. Thames and Hudson, London.
- Rostworowski de Diez Canseco, María, 1988, *Estructuras Andinas del Poder: Ideología Religiosa y Política*. Instituto de Estudios Peruanos, Lima.
- Rowe, Ann Pollard, 1990, Nasca figurines and costume. *Textile Museum Journal* 29-30: 93-128.
- Rowe, John Howland, 1948, The Kingdom of Chimor. *Acta Americana* 6: 26-59.
- Rowlands, Michael, 1993, The role of memory in the transmission of culture. *World Archaeology* 25: 141-151.
- Salomon, Frank, 1991, Introductory essay: the Huarochirí Manuscript. In *The Huarochirí Manuscript: A Testament of Ancient and Colonial Religion*, edited by Frank Salomon and George Urioste, pp.1-38. University of Texas Press, Austin.
- , 1995, "Beautiful grandparents": Andean ancestor shrines and mortuary ritual as seen through colonial records. In *Tombs for the Living: Andean Mortuary Practices*, edited by Tom D. Dillehay, pp. 315-353. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1998, How the huacas were: the language of substance and transformation in the Huarochirí Quechua manuscript. *Res* 33: 7-17.
- and George Urioste (eds.), 1991, *The Huarochirí Manuscript, A Testament of Ancient and Colonial Religion*. University of Texas Press, Austin.
- Schaedel, Richard P., 1951, Wooden idols from Peru. *Archaeology* 4: 16-22.
- Sherbondy, Jeannette, 1988, Mallki: ancestros y cultivo de árboles en los Andes. In *Sociedad Andina: Pasado y Presente*, edited by Ramiro Matos, pp. 101-136. Fomciencias, Lima.
- Sillar, Bill, 1996, The dead and the drying: techniques for transforming people and things in the Andes. *Journal of Material Culture* 1: 259-289.
- Silverman, Helaine and Donald A. Proulx, 2002, *The Nasca*. Blackwell, Malden (MA).
- Steward, Julian H. (ed.), 1946, *Handbook of South American Indians, Vol. 2: The Andean Civilizations*. Bureau of American Ethnology, Bulletin 143. Smithsonian Institution, Washington D.C.
- Taylor, Gerald, 1976, Camay, camac et camasca dans le manuscrit quechua de Huarochirí. *Journal de la Société des Américanistes* 63 (1974-76): 231-244.
- Tello, Julio C., 1929, *Antiguo Peru: Primera Epoca*. Comisión Organizadora del Segundo Congreso de Turismo, Lima.
- Trimborn, Hermann, 1968, South Central America and the Andean civilizations. In *Pre-Columbian American Religions*, edited by Walter Krickeberg, Hermann Trimborn, Werner Müller, and Otto Zerries, pp. 83-146. Weidenfeld & Nicolson, London.
- Uceda, Santiago, 1997, Esculturas en miniatura y una maqueta en madera. In *Investigaciones en la Huaca de la Luna 1995*, edited by Santiago Uceda, Elias Mujica, and Ricardo Morales, pp. 151-176. Universidad Nacional de La Libertad, Trujillo.
- van de Guchte, Maarten, 1996, Sculpture and the concept of the double among the Inca kings. *Res* 29/30: 257-268.
- Weismantel, Mary, 2004, Moche sex pots: Reproduction and temporality in ancient South America. *American Anthropologist* 106: 495-505.
- Wiener, Charles, 1993 [1880], *Perú y Bolivia*. Instituto Francés de Estudios Andinos, Lima.
- Zuidema, R. Tom, 1973, Kinship and ancestor cult in three Peruvian communities: Hernández Príncipe's account of 1622. *Bulletin de l'Institut Français d'Etudes Andines* 2: 16-33.

Trophy Head-Taking and Human Sacrifice in Andean South America

JOHN W. VERANO

INTRODUCTION

Human sacrifice took many forms in ancient South America. Individuals were killed and placed in tombs to accompany important persons in the afterlife, buried as dedicatory offerings in monumental buildings, and offered in various contexts as gifts to the gods. Captives were taken in small-scale raiding and in organized warfare, and executed in both formal rituals and impromptu reprisals. In some cases, body parts were collected from dead enemies and modified for various uses.

Sacrificial practices can be reconstructed from both indirect and direct sources. Indirect sources include historic accounts of trophy taking (such as the Jívaro of tropical Ecuador), descriptions of sacrificial practices recorded by Spanish and native chroniclers in the sixteenth and seventeenth centuries, and depictions of sacrifice and trophy taking in ancient South American art. Indirect sources must be used with caution: ethnohistoric accounts have various inherent sources of bias (Rowe 1946; Salomon and Urioste 1991; Adorno 2000), and iconographic depictions of human sacrifice often reference mythical or metaphoric elements (Cordy-Collins 1992; Proulx 2001).

Archaeological evidence of retainer and dedicatory burials, mass graves, and isolated body parts constitute direct evidence of sacrificial practices. The careful analysis of human remains from these contexts is important in distinguishing between sacrificial practices and standard mortuary behavior. Direct archaeological evidence of human sacrifice is therefore important in confirming or questioning events inferred from ethnohistoric and iconographic sources. Fortunately, the database of physical evidence of human sacrifice in Central Andean South America has grown substantially in recent years, thanks to field projects with an increasing focus on the careful excavation and curation of human remains and laboratory analyses of this material. This review will focus primarily on Central Andean South America, where the ethnohistoric and archaeological records are most detailed.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

OFFERING HUMAN LIVES

Ethnohistoric sources record that the Incas made regular offerings to honor and appease their gods, and that these occasionally included human sacrifices (Rowe 1946). The best known example is that of *qhapaq hucha*, the offering of children on high mountain peaks (see discussion in Chapter 40 in this volume). Many high altitude sacrifices have been discovered, increasing in recent years as a result of surveys and excavations conducted by international research teams (Reinhard and Ceruti 2000; Ceruti 2003, 2004). These *qhapaq hucha* sacrifices provide a rare opportunity to directly compare archaeological evidence to ethnohistoric accounts of the practice. Questions raised by these new discoveries have led to the application of novel analytical methods to examine questions such as the geographic origin of the children and the offerings placed with them (Reinhard and Ceruti 2000; Bray et al. 2005, see also Tung, this volume).

The Incas also were reported to have made child sacrifices to Pachacamac and to other deities (Figure 52.1) (Guamán Poma de Ayala and Pease G. Y. 1980; MacCormack 1991; Cobo 1990). To date no archaeological evidence has been found to confirm the sacrifice of large numbers of children mentioned by some Spanish chroniclers (Bauer 1998; D'Altroy 2002), but isolated child burials that may be sacrifices have been found at a number of pre-Inca archaeological sites, suggesting that the offering of children in ritual contexts might have great antiquity in South America (Benson 2001).

Dedicatory offerings of humans, in the form of intact and recently sacrificed individuals or secondary deposits of skeletal remains, are known from both coastal and highland Andean archaeological sites. The best known examples are from the site of Chan Chan in the Moche Valley on the north coast of Peru, where dedicatory burials of young women were found under doorways and ramps in the royal palaces or *ciudadelas* (Andrews 1974; Day 1982). Similar offerings have been reported from Chimú centers in other valleys, indicating that this was a widespread practice not limited to the capital city (Keatinge and Conrad 1983; Bruce 1986). Chan Chan stands apart, however, for its royal burial platforms constructed of cells containing hundreds of sacrificed females. These platforms represent dedicatory sacrifice on a scale unknown elsewhere in the South American archaeological record (Pozorski 1980; Conrad 1982).

In the southern Andes, the site of Tiwanaku also has produced archaeological evidence of human dedicatory offerings (Blom and Janusek 2004; Blom, Janusek, and Buikstra 2003). These are found in two distinct contexts, and appear to represent very different offering rituals. The first group is associated with Tiwanaku's most imposing monument, the Akapana, and consists of disarticulated and semi-articulated remains of humans and camelids, associated in one case with fragments of fine ceramics. Some of the human bones show evidence of surface exposure and damage from carnivores, suggesting that they were left exposed for a period of time prior to burial. Cut marks and fracture patterns on the bones indicate that the victims had been intentionally dismembered, and missing elements and groupings of skulls suggest that the remains were manipulated in complex ways before being buried. The remains are mostly of young males, and their treatment suggests that they may have been sacrificed enemies.

Other deposits of human remains found in Akapana East (an architectural compound east of the Akapana) were distinctive in their postmortem treatment, deposition, and context. In this case the human remains showed evidence of de-fleshing and grouping into bundles that were carefully buried in a small mound associated with a series of superimposed, carefully prepared floors that sealed the compound's contents. Blom and Janusek (2004)



Figure 52.1. Early Colonial Period depiction of an Inca ruler sacrificing a child to Pachacamac. (Guaman Poma de Ayala 1980, I: 266 [268])

suggest that these offerings may represent ancestral remains that were curated and then carefully buried in the enclosed and private space of this compound. While the Akapana and Akapana East seem to represent very different rituals, both are dedicatory offerings associated with architectural construction.

RETAINERS IN HIGH STATUS TOMBS

Bernabé Cobo, Cieza de León, and other Spanish chroniclers described the indigenous practice of retainer sacrifice in highland and coastal Peruvian societies in the late pre-Hispanic and early colonial period. Cobo wrote, “After mourning the deceased in this way, they performed their sacrifices and superstitious acts” and “if he was a true noble, some of his wives and servants were killed, and others were buried alive in the tomb with him so that they could serve and accompany him in the other life” (Cobo [1653] 1990: 250). Archaeological evidence confirms that this was in fact an ancient tradition (Figure 52.2), extending back at least to the third century AD on the north coast of Peru (Alva and Donnan 1993; Verano 1997), and found in later sites throughout the Andean area (Doyon 2002; Verano 1995, 2001). Retainers in tombs can usually be recognized by their unusual body positions or location in a tomb (e.g., placed in a corner, thrown face down, or forced into small



Figure 52.2. Principal burial and retainer in a Moche chamber tomb. As is commonly seen in these cases, the principal burial (on the left in the photo) is in standard burial position, while the retainer is in an atypical position. Huaca Cao Viejo, El Brujo Complex, north coast, Peru. (John Verano)

spaces). In cases of unusually good preservation, cords used to strangle the victims may still be in place, confirming cause of death (Verano 2001), but more often, retainers show no obvious signs of how they were killed and we must rely on contextual evidence.

In cases of multiple skeletons surrounding a principal burial in a tomb, one must be cautious about assuming that all auxiliary occupants are sacrificed retainers. In a high status Moche tomb (Tomb 1) at Sipán, northern Peru, some of the skeletons surrounding the principal burial showed jumbled bones (Figure 52.3), indicating that they were secondary burials and not sacrifices made at the time of tomb construction (Verano 1997). Re-entry of tombs, with the addition or removal of remains, can further complicate the issue. Recent research in coastal Peruvian cemeteries indicates that such practices, first documented in detail by Dorothy Menzel on the south coast of Peru (Menzel 1976), may have been more common than previously recognized (Buikstra 1995; Millaire 2002, 2004).



Figure 52.3. Female skeleton found in Tomb 1 at Sipán, Lambayeque Valley, north coast, Peru. Jumbling of the vertebrae and ribs (arrows) indicate that this was a secondary burial that was placed in the tomb after substantial decomposition of soft tissues had occurred. (John Verano)

EXECUTION OF CAPTIVES

There are various ethnohistoric accounts of the execution of captives in celebrations following Inca military conquests, as well as reprisal killings in response to acts of resistance or rebellion (D'Altroy 2002; Rostworowski de Diez Canseco 1999; Rowe 1946). Trophies made by the Incas from the skulls, long bones, teeth and skin of slain enemies were also described by chroniclers (Rowe 1946). The execution of captives is an activity quite different from offering children and valuable objects to shrines and deities, and "human sacrifice" is perhaps not an appropriate term to describe these killings. While captured enemies may have been dispatched as "offerings" to gods, the execution and mutilation of captives clearly functioned as a powerful means to humiliate and terrorize enemies, such as in the case of the Inca conquest of the Collas, whose leaders' heads were severed and placed in a special building in Cuzco called the Llaxaguasi, where the heads of other conquered enemies were displayed (Sarmiento de Gamboa 1942: chap. 37). Retaliatory massacres also served to cement Inca conquests and discourage resistance (Rostworowski de Diez Canseco 1999: 73-79).

The treatment of the bodies of executed captives may provide some insight into how these victims were viewed in their societies. Careful burial with sumptuary goods would imply that the victim had been transformed into an offering of value, as was the case with dedicatory burials of women at Chan Chan. In contrast, desecration of the corpse by mutilation, exposure to scavengers, burning, or denial of ritual burial conveyed a different message. A mass burial of mutilated corpses found at the site of Pacatnamú on the north coast of Peru is a good example of the latter (Figure 52.4). Here the mutilated remains of executed captives (as marked by ropes around their ankles) were thrown into the bottom of a trench at the entrance to a ceremonial precinct, and left exposed to flies and other scavengers (Faulkner 1986; Rea 1986; Verano 1986). In this case, the prominent display of the decomposing bodies of the victims and the denial of proper burial was clearly intentional.



Figure 52.4. Pacatnamu mass burial (Jequetepeque Valley, north coast, Peru), during excavation of the second layer of skeletal remains (Group II). (John Verano)



Figure 52.5. Moche sacrificial victims incorporated within the construction fill of Plaza 3C at Huaca de la Luna, Moche Valley, north coast, Peru. (John Verano)

The Moche of northern coastal Peru also took male captives and sacrificed them at their major ceremonial centers. The remains of captives killed by the Moche at the Huaca de la Luna either were left exposed on the surface to be buried by windblown sand or mud (during episodes of rainfall) (Bourget 1997, 2001; Bourget and Millaire 2000; Verano 2001, 2001), or were incorporated in the fill of plazas during their construction (Figure 52.5) (Verano and Tufinio n.d.). The only objects found in association with the skeletons were fragments of ceramic vessels shaped like seated captives. The incorporation of victims' remains in Moche ceremonial architecture has also been recorded at the site of El Brujo in the Chicama River Valley, where a portion of the femur of a dismembered victim was imbedded in the north façade of Huaca Cao, in a frieze depicting the presentation and sacrifice of captives (Figure 52.6).

To date, the largest sample of executed captives comes from a Late Intermediate Period site, Punta Lobos, located in the Huarmey Valley, north coastal Peru. The Punta Lobos sacrificial site was discovered in 1998 on a hill overlooking the Pacific Ocean by archaeologist Hector Walde. His excavations recovered the shallow burials of nearly 200 individuals. Previous clandestine digging had disturbed a portion of the site, but more than one hundred bodies were found in context. Their wrists and ankles were bound with rope or cloth, and cloth blindfolds were found still in place on many of the individuals. Cause of death was easily determined: their throats had been slashed repeatedly, as indicated by multiple cut marks across the lower cervical and upper thoracic vertebrae, and on the clavicles and first ribs (Figure 52.7). The majority of the victims were found lying face down in the sand; and some lay on their sides.

Other than a few fragments of *Spondylus* shell, no offerings were found directly associated with the bodies. A small pit found on an adjacent hillside contained simple offerings, including ceramics of a local style, a fishing net, and food, apparently an offering made to the victims by relatives. Punta Lobos is unusual for its location on an isolated hillside with no associated architecture. It is also unusual in that although most victims



Figure 52.6. a. Polychrome frieze on the north façade of Huaca Cao Viejo. b. The proximal end of a human femur found imbedded in the feet of one of the figures. Cut marks around the neck of the femur indicate that it was taken from a body while flesh still present. El Brujo Complex, north coast, Peru. (John Verano)



Figure 52.7. Execution by slashing the throat left cut marks across the body of the first thoracic vertebra. Entierro 12, Punta Lobos, Huarmey Valley, north coast, Peru. (John Verano)

are young males, children as young as seven years and old men are also present. This is a different demographic profile from the sacrifices at Pacatnamú and at the Huaca de la Luna, where all victims were adolescent or young adult males—an age range appropriate for captured warriors. Punta Lobos appears to represent a mass execution of another sort, possibly a reprisal killing. Radiocarbon dates place the event at ca. AD 1250-1300 (2 sigma calibrated), which coincides with the estimated date of conquest of the Huarmey Valley by the Chimú (Mackey and Klymshyn 1990). The Punta Lobos victims thus may represent a Chimú response to local resistance (Verano and Walde 2004; Verano and Toyne 2005).

TROPHY TAKING

As was mentioned above, the Incas were reported to have collected various body parts of defeated enemies as trophies, including heads, teeth, long bones (for flutes), and skin (for drums). A few examples of these can be found in museum collections, including necklaces of teeth (Yale Peabody Museum, New Haven), a bone flute (Amano Museum, Lima), and two examples of skulls that were intentionally modified, perhaps as drinking vessels (Figure 52.8). Two earlier examples of modified skull vessels have also been found at the Huaca del Sol-Huaca de la Luna Moche site in north coastal Peru (Verano et al. 1999).

Shrunk human heads, or *tsantsas*, first reported by Spanish explorers in the early sixteenth century, continued to be made until the late nineteenth century by the Jívaro of modern day Ecuador (Castner 2002; Stirling 1938). Full-size trophy heads (prepared without

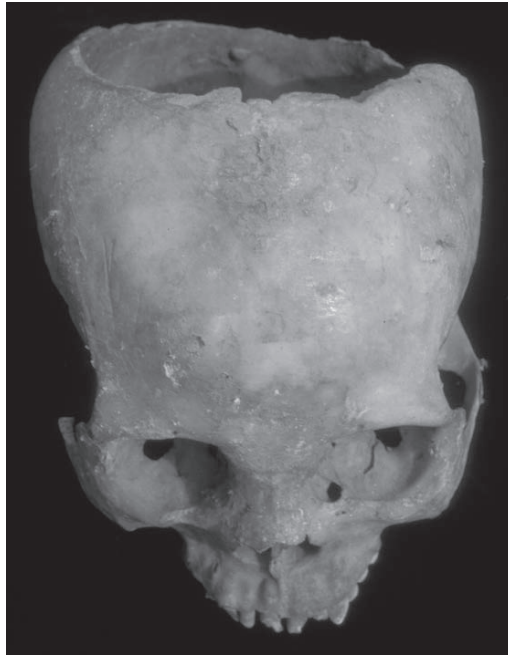


Figure 52.8. Human skull with large portion of the vault broken away by careful percussion, probably to modify it for use as a container. Catalog Number MO-H 364, 2639. Museo Inka, Cusco, Peru. (John Verano)

removing the skull) were also fashioned by the Mundurucú of Brazil until the early part of the twentieth century (Ihering 1907). Other than Jívaro shrunken heads, the best known human trophies from South America are mummified trophy heads prepared by the ancient Nasca of southern coastal Peru. More than one hundred Nasca trophy heads have been discovered in south coast sites (Baraybar 1987; Browne et al. 1993; Proulx 2001; Verano 1995; Williams et al. 2001; Silverman 1993; Silverman and Proulx 2002). They are recognizable by a hole in the frontal bone and breakage to the base or posterior portion of the skull. When well preserved, they retain mummified skin, scalp and hair, and have a carrying cord that passes through the hole in the forehead (Figure 52.9). There has been debate about how these heads were acquired and used, with two principal opposing positions. One view infers that the heads were ritualistic in nature—heads of revered ancestors (Tello 1918; Coehlo 1972; Guillén 1992; Neira and Coehlo 1972; Silverman 1993: 221-222 for Early Nasca); the alternative view argues that the heads came from enemies taken in battle or raiding, and were indeed trophies (Proulx 1989; Verano 1995, 2001; Silverman 1993: 222-223 for Late Nasca).

The most recent additions to the archaeological record of trophy taking in South America are Wari trophy heads. Previously known only as representations in Tiwanaku and Wari art, actual trophy heads now have been found in ceremonial structures at the Wari heartland site of Conchopata, and at the southern hinterland sites of La Real and Beringa, located in the Majes Valley. These trophy heads, as well as two unprovenienced specimens from the Majes Valley Museum were analyzed and described by Tiffany Tung (Tung 2003). Eight examples of trophy heads dating to the Middle Horizon have also been identified by



Figure 52.9. Nasca trophy head. Museo Nacional de Antropología, Arqueología, e Historia, Lima, Peru, Catalog Number AF: 7051. (John Verano)

Corina Kellner in her study of the Julio C. Tello skeletal collection from the Las Trancas Valley in the southern Rio Grande de Nazca drainage, south coastal Peru (Kellner 2002). These new additions to the archaeological record are interesting in several respects. First, the trophy heads from Conchopata were prepared in a manner distinct from that of Nasca trophy heads. The hole for a suspensory cord is located at the vertex of the skull vault (rather than in the middle of the frontal bone, as is typical of Nasca trophy heads), and drilled holes are also present on the occipital bone. In some cases, holes were also drilled through the ascending rami of the lower jaws, apparently to allow them to be tied to the skulls (similar drilling of the mandible has been reported in a modified skull from the site of Moche on the north coast of Peru [Verano et al. 1999]). Tung notes that the location of the suspensory cord hole in the Conchopata heads would allow them to hang in a horizontal position (like trophy skulls from some North American Indian cultures [Seeman 1988; Owsley and Jantz 1994]).

The contexts in which the Conchopata trophy heads were found is also distinctive. They show evidence of burning, and were intentionally crushed along with decorated ceramic vessels, and placed as offerings in D-shaped and circular ceremonial buildings (Tung 2003). No examples are known of burned or crushed Nasca trophy heads, although some have been found buried with simple offerings (Neira and Coelho 1972; Silverman 1993).

In contrast to the Conchopata material, trophy heads from the Majes Valley described by Tung conform to Nasca canons, with suspensory cords through the frontal bone, and no drilled perforations through the occipital bone or mandible. Middle Horizon trophy heads

from the Tello collection show some variety of preparation techniques, but also are similar to earlier Nasca heads (Kellner 2002: 91-92). The Conchopata trophy heads thus stand out as unusual, both in their preparation and in their ritual treatment.

CONCLUSION

Ancient South Americans, like other peoples around the world, made a variety of sacrifices to their gods. The offering of human lives constituted the most precious form of sacrifice, and appears to have been reserved for particularly important rituals and events. The capture and killing of enemies was a common practice in many societies as well. Such killings sometimes occurred within the context of elaborate rituals at major ceremonial centers (as in Moche prisoner sacrifice), but in other cases appear to have been perfunctory executions, without clear evidence of ritual behavior (Punta Lobos). Ethnohistoric accounts speak of a diversity of sacrificial practices that coincide well with the archaeological evidence. Integration of these two sources of information and the cautious use of comparative sources will continue to be essential to properly understand human sacrifice in ancient South America.

REFERENCES

- Adorno, Rolena, 2000, *Guaman Poma: Writing and Resistance in Colonial Peru*. Second edition. Institute of Latin American Studies, University of Texas Press, Austin.
- Alva, Walter, and Christopher B. Donnan, 1993, *Royal Tombs of Sipán*. Fowler Museum of Cultural History, Los Angeles.
- Andrews, Anthony P., 1974, The U-shaped structures at Chan Chan, Peru. *Journal of Field Archaeology* 1: 241-264.
- Baraybar, José Pablo, 1987, Cabezas trofeo nasca: nuevas evidencias. *Gaceta Arqueológica Andina* 15: 6-10.
- Bauer, Brian S., 1998, *The Sacred Landscape of the Inca: The Cusco Ceque System*. University of Texas Press, Austin.
- Benson, Elizabeth P., 2001, Why Sacrifice? In *Ritual Sacrifice in Ancient Peru*, edited by Elizabeth P. Benson and Anita G. Cook, pp. 1-20. University of Texas Press, Austin.
- Blom, Deborah E. and John W. Janusek, 2004, Making place: humans as dedications in Tiwanaku. *World Archaeology* 36 (1): 123-141.
- , John W. Janusek, and Jane Buikstra, 2003, A re-evaluation of human remains from Tiwanaku. In *Tiwanaku and Its Hinterland: Archaeology and Paleoecology of an Andean Civilization*, Vol. 2, *Urban and Rural Archaeology*, edited by Alan L. Kolata, pp. 435-448. Smithsonian Institution Press, Washington, D.C.
- Bourget, Steve, 1997, Las excavaciones en la Plaza 3a. In *Investigaciones en la Huaca de la Luna 1995*, edited by Santiago Uceda, Elias Mujica and Ricardo Morales, pp. 51-59. Universidad Nacional de Trujillo, Peru.
- , 2001, Rituals of sacrifice: its practice at Huaca de la Luna and its representation in Moche iconography. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 89-109. National Gallery of Art, Washington, D.C.
- , and Jean François Millaire, 2000, Excavaciones en la Plaza 3A y Plataforma II de la Huaca de la Luna. In *Investigaciones en la Huaca de la Luna 1997*, edited by Santiago Uceda, Elias Mujica and Ricardo Morales, pp. 47-60. Universidad Nacional de Trujillo, Peru.
- Bray, Tamara L., Leah D. Minc, María Constanza Ceruti, José Antonio Chávez, Ruddy Perea, and Johan Reinhard, 2005, A compositional analysis of pottery vessels associated with the Inca ritual of capacocha. *Journal of Anthropological Archaeology* 24 (1): 82-100.
- Browne, David M., Helaine Silverman, and Rubén García, 1993, A cache of 48 Nasca trophy heads from Cerro Carapo, Peru. *Latin American Antiquity* 4: 274-294.
- Bruce, Susan Lee, 1986, The audiencia room of the Huaca 1 complex. In *The Pacatnamu Papers*, edited by Christopher B. Donnan and Guillermo A. Cock, pp. 95-108. Museum of Cultural History, University of California, Los Angeles.
- Buikstra, Jane E, 1995, Tombs for the living...or...for the dead: the Osmore ancestors. In *Tombs for the Living: Andean Mortuary Practices*, edited by Tom D. Dillehay, pp. 229-280. Dumbarton Oaks Research Library and Collection, Washington, D.C.

- Castner, James Lee, 2002, *Shrunkn Heads: Tsantsa Trophies and Human Exotica*. Feline Press, Gainesville.
- Ceruti, María Constanza, 2003, *Llullaillaco: Sacrificios y Ofrendas en un Santuario Inca de Alta Montaña*. Ediciones Universidad Católica de Salta, Salta, Argentina.
- , 2004, Human bodies as objects of dedication at Inca mountain shrines (north-western Argentina). *World Archaeology* 36 (1): 103-122.
- Cobo, Bernabé, 1990, *Inca Religion and Customs*. Translated by R. Hamilton. University of Texas Press, Austin.
- Coelho, Vera Penteadó, 1972, Enterramientos de Cabezas de Cultura Nasca. Ph.D. dissertation. Universidade de São Paulo, Brazil.
- Conrad, Geoffrey W., 1982, The burial platforms of Chan Chan: some social and political implications. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 87-117. University of New Mexico Press, Albuquerque.
- Cordy-Collins, Alana, 1992, Archaism or tradition? The decapitation theme in Cupisnique and Moche iconography. *Latin American Antiquity* 3: 206-220.
- D'Altroy, Terence N., 2002, *The Incas*. Blackwell, Malden, MA.
- Day, Kent C., 1982, Ciudades: their form and function. In *Chan Chan: Andean Desert City*, edited by Michael E. Moseley and Kent C. Day, pp. 55-66. University of New Mexico Press, Albuquerque.
- Doyon, Leon G., 2002, Conduits of ancestry: interpretation of the geography, geology, and seasonality of North Andean shaft tombs. In *The Space and Place of Death*, edited by Helaine Silverman and David B. Small, pp. 79-95. Archaeological Papers of the American Anthropological Association, No. 11.
- Faulkner, David K., 1986, The mass burial: an entomological perspective. In *The Pacatnamu Papers*, edited by Christopher B. Donnan and Guillermo A. Cock, pp. 145-150. Fowler Museum of Cultural History, Los Angeles.
- Guaman Poma de Ayala, Felipe, 1980, *Nueva Corónica y Buen Gobierno*. 2 vols. Edition of Franklin Pease G. Y. Biblioteca Ayacucho, Caracas, Venezuela.
- Guillén, Sonia, 1992, The Chinchorro Culture: Mummies and Crania in the Reconstruction of Preceramic Coastal Adaptation in the South-Central Andes. Ph.D. dissertation. Department of Anthropology, University of Michigan, Ann Arbor.
- Ihering, Rodolpho von, 1907, Las cabezas mumificadas pelos indios Mundurucús. *Revista do Museu Paulista* 7: 179-201.
- Keatinge, Richard W. and Geoffrey W. Conrad, 1983, Imperialist expansion in Peruvian prehistory: Chimú administration of a conquered territory. *Journal of Field Archaeology* 10: 255-283.
- Kellner, Corina Marie, 2002, Coping with Environmental and Social Challenges in Prehistoric Peru: Bioarchaeological Analyses of Nasca Populations. Ph.D. dissertation. Department of Anthropology, University of California, Santa Barbara.
- MacCormack, Sabine, 1991, *Religion in the Andes: Vision and Imagination in Early Colonial Peru*. Princeton University Press, Princeton, N.J.
- Mackey, Carol J. and A. M. Ulana Klymshyn, 1990, Southern frontier of the Chimú empire. In *Northern Dynasties: Kingship and Statecraft in Chimor*, edited by Michael E. Moseley and Alana Cordy-Collins, pp. 195-226. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- Menzel, Dorothy, 1976, *Pottery Style and Society in Ancient Peru*. University of California Press, Berkeley.
- Millaire, Jean-François, 2002, *Moche Burial Patterns: An Investigation Into Prehispanic Social Structure*. BAR International Series, 1066. Archaeopress, Oxford, England.
- , 2004, The manipulation of human remains in Moche society: delayed burials, grave reopening, and secondary offerings of human bones on the Peruvian north coast. *Latin American Antiquity* 15 (4): 371-388.
- Neira, Máximo and Vera P. Coelho, 1972, Enterramientos de cabezas de la cultura Nasca. *Revista do Museu Paulista* 20: 109-142.
- Owsley, Douglas W. and Richard L. Jantz, 1994, *Skeletal Biology in the Great Plains: Migration, Warfare, Health, and Subsistence*. Smithsonian Institution Press, Washington, D.C.
- Pozorski, Thomas G., 1980, Las Avispas: plataforma funeraria. In *Chan Chan*, edited by Rogger Ravines, pp. 231-242. Instituto de Estudios Peruanos, Lima.
- Proulx, Donald A., 1989, Nasca trophy heads: victims of warfare or ritual sacrifice? In *Cultures in Conflict: Current Archaeological Perspectives*, edited by Diana C. Tkaczuk and Brian C. Vivian, pp. 73-85. University of Calgary Archaeological Association, Calgary.
- , 2001, Ritual uses of trophy heads in ancient Nasca society. In *Ritual Sacrifice in Ancient Peru*, edited by Elizabeth P. Benson and Anita G. Cook, pp. 119-136. University of Texas Press, Austin.
- Rea, Amadeo M., 1986, Black vultures and human victims: archaeological evidence from Pacatnamu. In *The Pacatnamu Papers: Volume 1*, edited by Christopher B. Donnan and Guillermo A. Cock, pp. 139-144. Museum of Cultural History, Los Angeles.

- Reinhard, Johan and Constanza Ceruti, 2000, Pilgrimage, sacred mountains, and human sacrifice among the Incas. Paper presented in the Pre-Columbian symposium "Pilgrimage and Ritual Landscape in Pre-Columbian America." Dumbarton Oaks Research Collection and Library, Washington, D.C.
- Rostworowski de Diez Canseco, Maria, 1999, *History of the Inca Realm*. Cambridge University Press, Cambridge and New York.
- Rowe, John H., 1946, Inca culture at the time of the Spanish conquest. In *Handbook of South American Indians, Vol. 2, The Andean Civilizations*, edited by Julian H. Steward, pp. 183-330. Bulletin 143. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Salomon, Frank and George L. Urioste, 1991, *The Huarochirí Manuscript: A Testament of Ancient and Colonial Andean Religion*. University of Texas Press, Austin.
- Sarmiento de Gamboa, Pedro, 1942, *Historia de los Incas*. Emecé, Buenos Aires.
- Seeman, Mark F., 1988, Ohio Hopewell trophy-skull artifacts as evidence for competition in Middle Woodland societies circa 50 B.C.- A.D. 350. *American Antiquity* 53: 565-577.
- Silverman, Helaine, 1993, *Cahuachi in the Ancient Nasca World*. University of Iowa Press, Iowa City.
- _____, and Donald A. Proulx, 2002, *The Nasca*. Blackwell, Malden, MA.
- Stirling, Matthew W., 1938, *Historical and Ethnographical Material on the Jivaro Indians*. Bulletin 117. Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Tello, Julio C., 1918, *El Uso de las Cabezas Humanas Artificialmente Momificadas y Su Representación en el Antiguo Arte Peruano*. Ernesto R. Villaran, Lima.
- Tung, Tiffany A., 2003, A Bioarchaeological Perspective on Wari Imperialism in the Andes of Peru: A View from Heartland and Hinterland Skeletal Populations. Ph.D. dissertation. Department of Anthropology, University of North Carolina, Chapel Hill.
- Verano, John W., 1986, A mass burial of mutilated individuals at Pacatnamu. In *The Pacatnamu Papers, Volume 1*, edited by Christopher B. Donnan and Guillermo A. Cock, pp. 117-138. Museum of Cultural History, Los Angeles.
- _____, 1995, Where do they rest? The treatment of human offerings and trophies in ancient Peru. In *Tombs for the Living: Andean Mortuary Practices*, edited by Tom D. Dillehay, pp. 189-227. Dumbarton Oaks Research Collection and Library, Washington, D.C.
- _____, 1997, Human skeletal remains from Tomb I, Sipán (Lambayeque river valley, Peru) and their social implications. *Antiquity* 71 (273): 670-682.
- _____, 2001, The physical evidence of human sacrifice in ancient Peru. In *Ritual Sacrifice in Ancient Peru*, edited by Elizabeth P. Benson and Anita G. Cook, pp. 165-184. University of Texas Press, Austin.
- _____, 2001, War and death in the Moche world: osteological evidence and visual discourse. In *Moche Art and Archaeology in Ancient Peru*, edited by Joanne Pillsbury, pp. 111-125. National Gallery of Art, Washington, D.C.
- _____, Santiago Uceda, Claude Chapdelaine, Ricardo Tello, Maria Isabel Paredes, and Victor Pimentel, 1999, Modified human skulls from the urban sector of the Pyramids of Moche, northern Peru. *Latin American Antiquity* 10 (1): 59-70.
- _____, and J. Marla Toyne, 2005, Ritual Sacrifice or Reprisal Killing? The Case of Punta Lobos, a Late Intermediate Period Mass Burial from the Huarney Valley, Northern Peru. Paper presented at the 45th annual meeting of the Institute of Andean Studies, Berkeley, California.
- _____, and Héctor Walde, 2004, A Mass Human Sacrifice at Punta Lobos, Huarney River Valley, Northern Coastal Peru. Paper read at 31st Annual Meeting of the Paleopathology Association, at Tampa, Florida.
- _____, and Moisés Tufinio, n.d., Plaza 3C. In *Investigaciones en la Huaca de la Luna 2000*, edited by Santiago Uceda, Elias Mujica and Ricardo Morales. Universidad Nacional de Trujillo.
- Williams, Sloan R., Kathleen Forgey, and Elizabeth Klarich, 2001, An Osteological Study of Nasca Trophy Heads Collected by A. L. Kroeber During the Marshall Field Expeditions to Peru. *Fieldiana: Anthropology* N.S. 33: 1-132.

Archaeology, Globalization and the Nation: Appropriating the Past in Ecuador

O. HUGO BENAVIDES

INTRODUCTION

The political use of the pre-Columbian past has a long tradition in Latin America. Nation-states such as Mexico and Peru have a vast array of monumental archaeological remains that have been incorporated into the normative western histories each of these political formations has imagined for itself. Ecuador, too, has pyramids and mounds, which have been readily incorporated into the imaginary of the nation and have been deployed ideologically to legitimize its political forms of governance. However, unlike the greater areas of Maya, Aztec and Inca ruins, Ecuador's imaginaries about its pre-Columbian past are less dependant on monumental evidence. Rather, like the other nation-states of South America (with the exception of Peru) Ecuador is more interested in asserting: 1) an Indigenous origin of the nation (however mythical this might be); 2) a European onslaught that overwhelmed native cultures (however favorably this might be understood); and 3) a modern (or post-modern) reconfiguration of a cosmic racial nation. It is also in this form that race, and particularly a mestizo racial production of it, is to a large degree the hidden scripture of the appropriation of the past in Ecuador, as well as the rest of South America.

The paradigm of an Indian origin, a European conquest, and a new racial body resulting from this mix denies not only the ethnic diversity of the Indian and European populations but most singularly denies the African contribution to the continent. It is in this manner, and not surprisingly, that the appropriation of the pre-Columbian past serves the same racializing interest that the Ecuadorian nation-state has embodied since its original national inception of 1830—that of constructing a white, western subject with mythical indigenous ancestry and minimal recognition of an African heritage. It is in this context

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

that archaeological discourses are contested landscapes in which groups and communities vie to reconstruct a past that not only legitimizes their existence but also gives reason and value to their own historical heritage and legacy.

In the following examples—albeit only three of a greater number of contestations of the Ecuadorian archaeological past—readers are privy to the manner in which different communities impress upon archaeological reconstructions their own political voice so as to privilege their own subject positions. This does not mean that their archaeological methodology is flawed as much as that archaeology is invested with a political axis that defines not only what gets studied but also how and when. It is in this manner that the appropriation of the past in Ecuador is invested with political underpinnings of the forms in which racial, national, sexual and other forms of subjection are projected both into the past and through the past, into the future.

JUAN DE VELASCO: AN INITIAL HISTORY OF THE NATION

The only original description of the ancient Kingdom of Quito (*Antiguo Reino de Quito*) was written by the Jesuit priest, Juan de Velasco, in 1789, while he was living in exile in Faenza, Italy with the rest of his religious community. Since then this narrative has become a source of national pride and identity in Ecuador. The Ministry of Education supports the idea of an ancient “Quitu” nation and encourages the Kingdom’s history to be taught in elementary and high schools. Velasco’s Kingdom of Quito is part of the State’s official seventh and tenth grades history curriculum and is hailed as “the foundation of the Ecuadorian nation” (*Programa Anual* 1996), notwithstanding the enormous amount of data disproving the veracity of Velasco’s account.

The lack of archaeological remains to support the existence of an ancient Quito nation was already apparent with the emergence of an archaeological discipline in the country in the late 1800s. Indeed, early in the twentieth century it was recognized that the polity had been “invented” since there were no material cultural remains to empirically demonstrate its existence (Jijón y Caamaño 1918; see also Salazar 1995; Moreno 1992). Furthermore, claims by Velasco’s supporters that the Inca and Spanish invasions had ravished the Kingdom of Quito’s material remains are unreasonable in the light of the enormous amount of archaeological evidence for other groups that was being uncovered by these early pre-Columbianists. All of this led the first generation of archaeologists in the late 1800s and early 1900s to argue that Velasco’s history was: “A conspiracy inspired to give the much loved country, from which he was exiled, a grand aura in its past history that the nostalgic Jesuit did not want to be any less than the one of the empire of the Incas” (L.N.S. n.d.: 66-67). The existence of the Kingdom of Quito has never been confirmed by archaeological evidence or by independent ethnohistoric accounts or linguistic evidence (Benitez Vinuesa 1986). Velasco’s account is also riddled with egregious inconsistencies.

The Kingdom of Quito seems to have been based purely on oral traditions recounted to Velasco while he was living in the colonial period *Real Audiencia de Quito*. Furthermore, he actually wrote this history decades later, while in exile and without any aid other than his memory. Finally, many of the structural elements within Velasco’s narrative closely resemble ethnohistoric descriptions of the Inca Empire itself, such as worship of the sun, while the monarchy seems too similar to the Spanish system of the period (Navas Jimenez 1994: 54).

But there have been many Ecuadorian scholars who have come to the rescue of Velasco's narrative of the Quito nation in the last two centuries. Among them are many renowned historians, politicians and writers such as Juan León Mera, Pedro Fermín Cevallos, Jorge Salvador Lara, Gabriel Cevallos García, Isaac Barrera, and Julio Tobar Donoso. All of them were willing to accept the possibility of some minor historical inconsistencies due to the limited nature of history in the period in which Velasco lived and wrote; they would not challenge the overall validity and truth of the account. Some argued that Velasco had not written the history from memory and that he actually had documents to help elucidate his narrative. Most agreed that "Peruvianaphile" critics were intent on decentering the importance of a history of the ancient Kingdom of Quito and that they were responsible for shedding doubt on Velasco's history (L.N.S. n.d.).

All school textbooks embrace this last position, agreeing with the scholars mentioned above, and hailing Velasco as "a pride to the country" (Jorge Salvador Lara in L.N.S. n.d.: 68). They also argue that modern archaeological evidence now supports the existence of a Quito nation (L.N.S. n.d.: 67) and that many other Spanish chroniclers confirm the existence of the Kingdom of Quito: "they categorically express that the Kingdom of Quito existed" (Navas Jimenez 1994: 55).

For the textbooks and Ecuador's official history there is no doubt that: "we can never do without ... his [Velasco's] *History of the Kingdom of Quito*" (Jorge Salvador Lara in L.N.S. n.d.: 68). This official history also affirms that every Ecuadorian student should read Velasco's account, and that in it they will find pleasure, inspiration and patriotic pride, because without question Juan de Velasco is one of the spiritual founders of the country (Espinosa in *Vistazo* 1997).

Through the challenge by archaeologists and ethnohistorians to the validity of the Kingdom of Quito, Velasco himself becomes a character in his narrative and the textbooks consider it necessary to provide an exegesis for this martyred historian. Through this mode Velasco himself becomes one of the factual characters, adding credence to his mythical story. He is hailed as a victim assaulted by unpatriotic historical discourses, just as the Kingdom of Quito was treacherously assaulted by its southern neighbors.

In the State's official account of the Kingdom of Quito the central narrative is in many ways a simple war story—a tale of a smaller polity (Quito) resisting the onslaught of an invading imperial enemy (the Incas). Clearly, if the Quito nation resisted and outwitted the onset of the Inca conquest, it will also survive the treacherous attack of modern historiography.

Velasco's account is also a story of re-conquest and vengeance, as the defeated Kingdom of Quito reconquers the conquerors, the Incas, in the end. In the textbooks the Incas are first hailed as enemies of the Quito nation (read Ecuador), but interestingly they are themselves conquered by the region's geography (in the cities of Tomebamba and Quito) and by the beauty of their women (Princess Pacha). The Incas themselves are seduced, and accept Atahualpa, born on Ecuadorian soil, as the Inca heir to Huayna Capac's throne. Atahualpa not only rightfully reigns over the Quito polity but usurps the Peruvian throne of Tahuantinsuyu, the old enemy and plunderer of the Quito state. Through King Atahualpa and Princess Pacha, the Inca conquerors themselves are conquered.

In the State's reproduction of Velasco's account there is little factual evidence in comparison to pervasive mythical elements. It is unimportant for the State's agencies to prove that the mentioned characters and sites actually existed. The fact that they were brought to life by Velasco himself is accepted as proof of their reality. In this manner you have historical figures (such as Atahualpa), next to a whole series of Kingdom of Quito

leaders (such Hualcopo Duchicela, Cacha, Pacha) and generals (such as Calicuchima, Quisquís) for whom there is no independent evidence of their existence. At the same time these elements create a perfect mythical realm in which the story develops.

It is precisely because all the characters belong to an ancient past impossible to disprove that it becomes mythical. The mythical figures do not hinder the factual one, quite the opposite, the whole narrative is enveloped in a mythical quality that secures its founding elements. The few factual characters secure its validity even more, and secure the knowledge of particular minute details such as the moods experienced by certain characters at particular moments in the story, such as Condorazo's anger and sadness at having to give up his crown to his son Duchicela.

The schoolbook's pervasive mythical qualities also allow the story to be hailed as a founding history of the nation-state, an official national history. Although some of Velasco's shortcomings are accepted as a result of the historical limitations of his time, these limitations ultimately reinforce the validity (and urgent need) of his account for the State. In this instance Velasco's own failing is used as independent proof for the veracity of the account. Ultimately, the mythical quality of the failed narrative content helps prove (or rather, makes it impossible to disprove) the account's validity and therefore, the existence of the Kingdom of Quito as the precursor of the Ecuadorian nation.

It is in this fashion that there is no single monolithic national history, not even a monolithic official one but, rather, histories in the plural that are constituted by multiple versions of the past (see Benavides 2004). The construction of national histories is yet another play in the theatrical production of Ecuador's past, and as in the archaeological drama of the pre-Hispanic Kingdom of Quito, there are a varied number of players, actors and agendas implicated in its production. Ecuador's national hegemonic histories are not only actively contested but are very much based on this contestation. Ecuador itself does not exist outside of this constant and dynamic historical contestation. As outlined above the multiplicity of actors and themes implicated in just one variant of the national official drama points to how all histories (official and not) are articulated and constituted under the guise of a non-existent and yet hegemonic image of a singular national history of the Ecuadorian nation.

In Velasco's account and in the State's official backing of his history, archaeology occupies an important space in the maintenance of the Ecuadorian nation. Archaeological knowledge, as instituted in sites or narrated in official textbooks, informs a national past in ways that are congruent with the modern representation by the nation-state. Therefore, archaeological reconstructions are always implicated in the process of nation building and state formation (even though these reconstructions are subtly articulated and seldom acknowledged in public forums).

THE SITE OF COCHASQUÍ AND THE FAILED EMBLEM OF THE NATION

Archaeologically, Cochasquí was a major pre-Inca center in the highlands of Ecuador near Quito, comprised of some fifteen truncated pyramid mounds, associated domestic zones and other features in area covering more than 80 ha. Today it is produced as the emblematic site of Kingdom of Quito. The genealogical narrative at Cochasquí makes use of contemporary notions of gender, family and the Indian past to legitimize an official national identity. It is in this manner that the site constructs a story of primordial origins that weaves

its metaphorical parts with that of historical evidence (Alonso 1988). Interestingly, in this origin story it is a woman, Queen Quilago, who is the primordial character in the archaeological plot of the site, not a man. This is less due to her motherly traits than to that of being the last reigning political and military leader of the site.

Quilago occupies the central plot of the archaeological narrative as the person who managed to lead a military coalition with the neighboring Indian communities against the conquering Inca army [Note 1]. Therefore, Quilago ends up representing the fighting and unrelenting spirit of Cochasquí that is only defeated by the military superiority of the Incas, and who ultimately sacrifices her life in the struggle [Note 2].

It is at this point that Quilago is also represented as the mother of the Ecuadorian nation, since after her defeat she is forced to marry the conquering Inca emperor, and her offspring is hailed as the first true Ecuadorian, born of this hybrid relationship. It is explicitly emphasized that this is a forced marriage that Quilago accepts as a sacrifice to save her community from further destruction. Further evidence of this is that Quilago will die after the Inca emperor realizes she has plotted against him, even after having had his child. This turn of events is even more meaningful when the story outlines how it was Quilago's own servants who betray her, informing the Inca emperor, Huayna Capac, of her plan. This betrayal of Quilago by her own people is never fully explained but is ambiguously implied along with many other generative traits of the archaeological narrative of family and nation expounded by the tour guides at the site.

Perhaps more extraordinary is that Quilago is seen as mothering Atahualpa, the last ruling Inca. The archaeological narrative at the site presents her as the mother of the Inca Atahualpa, which is further supported by other historians (see Jijón y Caamaño 1977). It was this particular line of evidence that provoked a national search for Quilago's body at the site in 1930 by the Ecuadorian military to reclaim the mother of the nation (*El Día* 1930). The protagonist role that Quilago holds at the site is indisputable among the tour guides and in the fact that the site museum even carries her name. This is why many tourists, after having visited the site, will claim that they want to know more about Quilago, "the Queen of Cochasquí, to be able to imagine that a special woman was once here" (Interview date: April 16, 1997).

However, the historical discourse on Quilago is but one engendered element of the site. Along with this narrative of an exceptional feminine representation that breaks the contemporary accepted norms of Ecuadorian womanhood there is also a masculine discourse that is able to subtly go hand in hand with it. If Quilago is the representative of courage and maternal concern at one and the same time, the site itself, one could argue, is masculinized to represent the pre-Hispanic community's members' courage against the foreign conquerors, who are central in the narrative of the nation's historical beginnings.

It is this double play of images that allows the tour guides' commentaries to not only legitimize the Indian spirit at the site but that of all Ecuadorians, as one and the same family—and in doing so to erase all racial divisions and hierarchical legacies. This is done first by the appropriation of the site as Ecuadorian: Quilago and her community are understood as Ecuadorian themselves (i.e., members of the nation-state that would officially come into existence hundreds of years later). It is also in this initial narrative that the Incas are nothing else than Peruvian invaders, the known aggressor for Ecuadorians in the contemporary production of the nation-state (see Note 1 again). This is what allows some of the guides to see it a hard chore for Peruvians to visit the site, because, they say, the evidence of southern historical aggression against Ecuador can only make them feel guilty or resentful.

That is why many times Peruvians will abandon the tour midway—but ultimately it is not the guides' or anybody's fault, "that's just the way history is" (J. C., site guide, personal communication).

At another level this historical identification of the site with Ecuador's contemporary territorial disputes with Peru also has its own hermeneutical benefits—because it is precisely this over-identification with the Ecuadorian-Peruvian conflict that allows the site to further erase the inherent racial demarcation that defines the Ecuadorian nation-state. At Cochasquí identification with the greater national formations allows the site to be used to legitimize an Indian past. This is ironic since those same ancestral Indian communities—along with Afro-Ecuadorians and "cholos"—continue to be treated in inhuman and racist manners in the country. I reiterate: the site is hailed as a marker of national identification while depending on the very denial of the contemporary Indian groups' identities whose past is being appropriated as Ecuadorian. It is in this manner that a historical continuity is denied to the Indian communities, yet Cochasquí is at the heart of the nation's narrative about its post-pre-Hispanic future.

It is also in this manner that Quilago's narrative at Cochasquí—that initially seems to escape the usual naturalized Ecuadorian gender scripts—is ultimately used to legitimize the same sexist definition of the nation, and in doing so play gender and the nation against themselves as natural significations (which they are not). The representation of a heroic and virile masculinity at pre-Hispanic Cochasquí is essential to appropriate the site in contemporary Ecuadorian terms and allows Cochasquí to be incorporated into the contemporary narrative that the nation-states tells itself and other about itself.

My argument is that Quilago escapes the inferior feminine depiction of Ecuadorian womanhood only to be burdened by the masculine characteristics of courage, strength and unwieldy spirit. It is in these gendered narratives that the origin of the Ecuadorian nation is most clearly articulated, and in a certain fashion allows for a national history that in other manners would never be able to exist. This is also why the nationalization of the site also makes use of a discourse of familial relationships and obligation, not only of gendered discourses, providing in this fashion a genealogical discourse that is able to afford and reconnect with the mythical origin of the pre-Columbian past.

Therefore it is only through the naturalization of gender and familial relationships and a mythical pre-Columbian past that Cochasquí can be seen as and become an Ecuadorian site [Note 3]. The main problematic is not that Cochasquí is ultimately hailed as an Ecuadorian site but rather that it is done with the images of an asexual queen (who fights and bears children but never enjoys sexual relationships); of a divided family (since Atahualpa is the offspring of a forced mother who is killed for plotting the death of her husband/his father); and of failed national communities (first represented as the Cochasquí polity and then by the Incas themselves as they are ravaged by the conquering Spaniards) in a national discursive miracle.

More specifically the site allows assessing a particular cultural economy in the manner in which heritage production and national appropriation is carried out. This economy of cultural metaphors and social significations enable Cochasquí to be seen as a national altar (or peregrination site) to which thousands of visitors flock to every year to prove their national allegiance. That this national identification is not always a conscious reality only seems to contribute further to the particular power that such a national hegemonic desire holds. As Silberman (1995) among others has explored, national sites such as Cochasquí allow citizens to imagine themselves as belonging to the same nation precisely when their national identification is so exacerbated by other social divisions.

The historical allure that sites like Cochasquí offer through an image of an essentialized national past offers insight into the constitutive force that these archaeological pilgrimage sites represent. At the same time these national altars are, or gather, a singular internal reasoning within the scientific legitimization upon which global relationships are defined in the postmodern world (Hall 1997; Haraway 1989). It is the authority provided by a scientific method (such as that of modern archaeology) that allows Ecuadorian national identity to sustain itself in front of foreigners and compatriots alike.

This particular form of national pilgrimage occurs every day at Cochasquí among its visitors, archaeologists, and site workers; in this they are like members of a national church. In one way or another, all persons at the site are committed to a particular triumphant depiction of the nation's identity—even though the congregation's depiction is really not as triumphant as one might imagine but rather an emblem of Ecuador's failed national project. For amongst all the people at Cochasquí one can always perceive a sense of regret or sadness that the nation is no longer as great or triumphant as it had been a thousand years ago.

But it is through this regret or deception that the Ecuadorian nation-state claims an even greater form of historical legitimization. Because it is only in this space of failure, in its intimate void, that Ecuadorians (and foreigners) reconstruct the image of a nation that has never existed but in their own minds. And it is from that moment (or continuation) that the need to produce (and therefore commit oneself to) a striving or vying Ecuadorian nation becomes a central piece of one's life and identity. It is in this fashion that the past narrated at Cochasquí is a performative act about what Ecuador is not, but rather should be, if it ever really had existed. And that is also why the nation-state's ultimate failure is also the ultimate proof of its existence.

However, this construction of the Ecuadorian imaginary has had impressive effects of power over all those who visit the site—so that what at one point can be seen as a national failure (the sadness over what the nation is not) is only the most powerful source for a revitalized national identity. This is why the Ecuadorian nation depends on thousands of failed national projects, and these are present at Cochasquí every single day, allowing for a smooth reproduction of the past, Cochasquí and the nation, all at one and the same time.

THE ENCHAQUIRADOS AND GUAYAQUIL'S SEXUAL PAST

The Spanish were horrified when they arrived on the coast of Ecuador because of certain cultural behaviors they observed among the Manteño-Huacavilca people. Among the reproachable activities were not only idolatry, dealings with the devil, and animal and human sacrifices, but also—quite significantly—the sin of sodomy. Paramount in this sexual practice was a group of young men recognized for their homosexual activity and their ritual attire incorporating chaquiras (shell beads) and gold ornaments. Fernandez de Oviedo (1959: 221) describes the enchaquirados (literally, the beaded ones) in the following manner: “Most of the Indians who inhabit the coast are abominable sodomites, practicing it with boys, and they would have the boys very well beaded [enchaquirados] and adorned with lots of gold jewelry”. Very little is known about these young men. However, taking into account their attire of chaquiras and gold we can assume that they were held in some esteemed status within the community, especially since the chaquiras were considered priceless artifacts among these coastal groups.

What is also telling in many of these descriptions is that the chaquiras were not only highly esteemed but were also part of the female attire (Cieza de León 1971). In another description Cieza (1971: 204) seems to imply the emotional importance of some of these young men, when he describes the traditional indigenous practice of burying the chiefs' companions with him at the time of his death: "This custom of burying their dead with their weapons, their treasure and much maintenance was widely spread in these lands that we have discovered; and in many provinces they would also bury live women and boys".

Other homosexual activities among these groups is described by many of the Spanish chroniclers who initially visited these coastal groups: "But as these people were evil and full of vices, notwithstanding that among them there were many women, and some of them extremely beautiful, most of them engaged in (which has been certified to me) publicly and in the open in the horrendous sin of sodomy, in which it is said that they glorified themselves in extreme" (Cieza de Leon 1971: 198).

Two significant elements of this account are the acknowledgement of the widespread practice of sodomy among the Manteños and Cieza's reticence in even mentioning the sexual practice of sodomy itself. In some of the other accounts, such as that of Lizirraga (1968), the use of homosexual activity to create a sense of "otherness" is particularly explicit. This distance is not only afforded by the Spanish themselves but is also instrumental to separate the Indian communities. In this account, in which Fray Reginaldo de Lizarraga seems to have confused the names of the Indian communities, the description of the acts of sodomy not only has civilizing undertones but also racializing ones: "There lived in this city and its districts two nations of Indians, one called Guamcavillcas [sic], well-disposed people and white, clean in their dress and good-looking; the other ones are called Chonos, blacks, and not as sociable as the Guamcavillcas [sic]; both of them are warring people; their weapons, bow and arrows. The Chonos have bad reputations of engaging in the horrendous vice of sodomy; they have their hair on end and the top of their heads completely bald, which is why the rest of the Indians ridicule them; calling them Chono dogs ..." (Lizarraga 1968: 66).

The Spaniards' negative moral judgment of sodomy among the Manteños-Huancavilcas has carried over to the contemporary production of Guayaquil's Indian past in which the enchaquirados have escaped official notice, because in terms of the official historiography they did not really exist. In this regard, even when historians mention this disturbing homosexual element, this counter-hegemonic description is not able to fully question the heteronormative discourse that has defined and serves to legitimize the Ecuadorian archaeological and historical establishment.

This existential debate on pre-Columbian sexuality is implicated in a myriad of more racial, class and national issues. Guayaquil's contemporary dismissal of any public referral to homosexuality speaks to the success of the systematic Spanish and religious production of a sexual discourse devoid of non-heterosexual elements.

In light of the ethnohistoric accounts one must question the traditional historical interpretations of enchaquirados as a sexual anomaly. The enchaquirados were far from an aberration, constituting a ritually prescribed normative social element of Manteño-Huancavilca society and possibly other pre-Columbian populations. It is also evident that strict sexual norms were part of Latin America's past Indian communities but unlike today, homosexuality was far from the crime/sin that has been reified in contemporary terms. However, this new historical interpretation demands an assessment not necessarily of flawed Ecuadorian scholarship but rather of the greater hegemonic discourses that structure all interpretations of the past, particularly those archaeological discourses implicated by sex and race.

CONCLUSION

The preceding three cases (Juan de Velasco's Kingdom of Quito, Cochasquí, the enchaquirados) reflect different moments of political articulation in which the past is essential in presenting particular national, racial, and sexual legitimizations of the Ecuadorian nation-state. Far from exceptions these three cases capture the myriad of daily examples in which the past is not only alive and well but an essential element in contemporary popular identity production. The archaeological past may be reified in academic terms but it is far from non-existent in the day-to-day interactions that allow Ecuadorians, as well as all South Americans, to know their history, and then be able to use that history to define who they are and what kind of informed choices they will make about their existence in a highly competitive and globalized world.

Juan de Velasco's mythical history of a primordial Quito nation that pre-shadowed the contemporary Ecuadorian one is far from an obsolete history. Despite the wealth (or absence) of archaeological evidence to the contrary, the mythical Quito nation is used by official Ecuadorian textbooks and historians to provide historical legitimization to a nation-state that is traversed by enormous insecurities about its colonial foundation and present-day existence. It is not so much that archaeologists have been absent in this debate as that they have suffered the same effects as local historians at the site of Cochasquí: that is, in this regard, the mythical Kingdom of Quito has a hegemonic hold on the contextual need for its existence, which in most other places has been given up to the normalizing discourse of archaeological scientific investigations.

Therefore, Cochasquí is almost the contrary in methodological terms, even when the final outcome is not necessarily so. The archaeological discourses at the site ultimately elaborate on gender equality and racial harmony to elevate the status of the Ecuadorian nation, precisely because Ecuador has never exhibited one or the other. Far from it, Ecuador is a highly racist and hierarchical nation-state that, like all other South American ones, has based its existence on differing types of social discriminations that have a long-standing history in the pre-Columbian and colonial record. Therefore in this scenario it is archaeological investigations that provide images of a triumphant Indian past, which can be normalized into a pan-historical racial and sexual imaginary that otherwise would speak of bloodshed, conquest and ultimate domestic betrayal—all local representations far too close for the nation's comfort.

It is this same normalizing racial and sexual discourse that has made the enchaquirados invisible not only in the official archaeological recovery of the past but to generations of Guayaquileans over the last two centuries. The pre-Columbian Indian past has been recovered by the coastal city of Guayaquil in a sanitized manner to support the civilizing and heterosexist notions inherited from its dominant Spanish ancestors. This does not mean that the enchaquirados have been erased, but rather they have been adapted to the changing racial and sexual needs of the Ecuadorian nation-state.

A mere scratch on the ethnohistoric and archaeological surfaces reveals differing reflections of all three archaeological elements—a Quito nation, Cochasquí, the enchaquirados—which in one way or another are counter or hegemonically adapted to the officializing Ecuadorian national discourse. The mistake is to ever claim any of those variations as historical truth without considering the always problematic articulation of their reproduction within the myriad productions and discourses of the present. And in this regard Ecuador is no different from other South American nation-states that utilize a rich and diverse past to struggle in an unequal climate of globalization needs and political resources (Hodder 2000).

NOTES

1. It also does not hurt Ecuadorian nationalism that the invading Inca force has strong parallels to contemporary Peruvian representations.
2. Again, there are very strong national parallels between this heroic action and that of other figures, such as the depiction of Abdón Calderón's death in the battle for independence at Pichincha.
3. Only after one has naturalized arbitrary gender relations is one capable of re-naturalizing racial and national ones as well (Kaminsky 2001).

REFERENCES

- Alonso, Ana Maria, 1988, The effects of truth: re-presentation of the past and the imagining of a community. *Journal of Historical Sociology* 1 (1): 58-89.
- Benavides, O. Hugo, 2004, *Making Ecuadorian Histories: Four Centuries of Defining Power*. University of Texas Press, Austin.
- Benitez Vinuesa, Leopoldo, 1986, *Ecuador: Drama y Paradoja*. Banco Central del Ecuador and Corporación Editora Nacional, Quito.
- Cieza de León, Pedro, 1971 [1553], *La Crónica del Perú*. Colección Austral, Buenos Aires.
- Fernandez de Oviedo, Gonzalo, 1959 [1535], *Historia General y Natural de las Indias*, 5 vols. Madrid.
- Hall, Stuart, 1997, The local and the global: globalization and ethnicity. In *Culture, Globalization and the World-System: Contemporary Conditions for the Representation of Identity*, edited by Anthony King, pp. 19-40. University of Minnesota Press, Minneapolis.
- Haraway, Donna, 1989, Teddy bear patriarchy: taxidermy in the Garden of Eden, New York City, 1908-36. In *Primate Visions* by Donna Haraway, pp. 26-58. Routledge, New York.
- Hodder, Ian, 2000, Archaeology and Globalism. The David Skomp Distinguished Lectures in Anthropology, 1999-2000. Indiana University.
- Jijón y Caamaño, Jacinto, 1918, Examen crítico de la veracidad de la historia del Reino de Quito del P. Juan de Velasco de la Compañía de Jesús. *Boletín de la Sociedad Ecuatoriana de Estudios Históricos Americanos* 1: 1-3.
- , 1997, *Antropología Prehispánica del Ecuador*. Embajada de España y Museo Jacinto Jijón y Caamaño, Quito.
- Kaminsky, Amy, 2000, The queering of Latin American literary studies. *Journal of Latin American Research* 36 (2): 201-19.
- Lizarraga, Fray Reginaldo de, 1968 [1605], *Descripción Breve de Toda la Tierra del Perú, Tucumán, Río de la Plata y Chile*. Madrid.
- L.N.S., n.d., *Historia del Ecuador: Primera Parte*. Editorial Don Bosco, Cuenca.
- Moreno, Segundo, 1992, *Antropología Ecuatoriana: Pasado y Presente*. Colección Primicias de la Cultura de Quito, Ediguías Cia. Ltda., Quito.
- Navas Jimenez, Mario, 1994, *Historia, Geografía y Cívica*. Gráfica Mediavilla Hnos., Quito.
- Programa Annual, 1996, "Historia General del Ecuador—Cuarto Curso." Colegio Nacional Tumbaco, Tumbaco.
- Salazar, Ernesto, 1995, *Entre Mitos y Fábulas: El Ecuador Aborigen*. Biblioteca General de Cultura, 4. Corporación Editora Nacional, Quito.
- Silberman, Neil Asher, 1995, Promised lands and chosen people: the politics and poetics of archaeological narrative. In *Nationalism, Politics, and the Practice of Archaeology*, edited by Phillip Kohl and Clare Fawcett, pp. 249-262. Cambridge University Press, Cambridge.
- Vistazo, 1997, Padre Velasco, *Vistazo* 723, 2 Octubre 1997.

Cultural Heritage Management in Peru: Current and Future Challenges

ALVARO HIGUERAS

INTRODUCTION

Cultural Heritage Management (henceforth, CHM) is a long-term and integral strategy for planning the development of a valley or a region for its preservation and the dissemination of its cultural heritage resources to the public. CHM's strategy is not unlike a multidisciplinary research project, integrated by a set of successive and linked phases: planning, study, preservation, presentation, promotion, sustainability.

Peru's cultural patrimony is characterized by a diverse and complex set of cultural resources, which are especially rich for the pre-Hispanic era. These constitute the main pillar in the government's quest for new activities and attractions to support a rise in cultural tourism from national and international visitors. Archaeological heritage can provide solid foundations to CHM plans, but ethnographic and historical resources should complement it as cultural heritage in Peru. For instance, north coast sugar cane mills of the nineteenth century agro-industrial era, and certainly the many Colonial era monuments, could be viable targets of incorporation into a CHM strategy. Improving roads to these many attractions would facilitate the creation of a cultural heritage network and ultimately benefit local populations. This kind of broad assemblage of resources will be vital, but not sufficient, for creating a successful CHM project.

This chapter is written at a time when the field of cultural heritage management in Peru is at a crossroads: only recently is the management of cultural heritage being addressed as a complex *network* of organizational resources [Note 1], rather than a strategy that pinpoints investment in *discrete* resources. The creation of a network is an important

operational concept in the conservation and promotion of cultural heritage and the development of “cultural districts” or tourist regions.

The success of a CHM project resides in the diversity and integration of cultural as well as economic and social resources at different scales; the project may not necessarily be geared towards tourism (Navrud 2005). Such “networks” also require an improvement of services so as to create viable and sustainable cultural regions. Indeed, CHM projects should also encompass sanitary, ecological and transportation components. While conservation of monumental heritage may have benefits for tourism, ultimately CHM will be successful in the preservation of heritage for future generations only if it addresses current infrastructural problems as well as ideological domains.

The concept of a *long-term* and *broad* strategy geared towards managing a cultural resource is still imprecisely understood in Peru. Moreover, government institutions do not have the capacity to implement such strategies, but this is hardly surprising. CHM is a highly specialized and complex endeavor more often undertaken by private/public consortiums and seldom by government agencies alone. In Italy for instance, despite the large bureaucracy dedicated to heritage, CHM projects, such as those for preparing plans to manage World Heritage-listed sites, are made by private consultants, sometimes at the request of local and regional governments. These management projects, suspicious to public administrators, do not have “carte blanche”; rather, they are often implemented with government experts and supervision. These projects are often created as “joint-ventures” where the skills of several parties are put to work. In contrast, another source of “heritage” work is the very active, unsupervised and often faulty interventions by very independent non-governmental organizations (NGOs) in a variety of activities, from health to heritage preservation.

CHM projects are *not* similar to what in the United States is called Cultural Resource Management (CRM). CRM has also existed in the Peruvian cultural arena for about two decades. Peruvian CRM surged after legal requirements in heritage norms mandated preliminary surveys in areas being developed by mining and oil companies. Peruvian CRM projects are conducted by private teams and address heritage resources in an “environmental impact” framework and with a “rescue” or “emergency” character. Emergency work unrelated to land development is also conducted by the National Institute of Culture/Instituto Nacional de Cultura (hereafter INC) on a very limited basis [Note 2].

CHM projects are thus complex endeavors that encompass issues ranging from political to financial; require a staged and planned development; and spring from the input of diverse sectors and institutions joined by common goals towards cultural heritage preservation. These common goals can range from producing an active and public archaeological site, managing a fragile site in a pristine and delicate environment, creating an integrated, rich and diverse tourist region, or redesigning the urban setting of an historic city.

CHM IN PERU

Silverman (2006b: 58) has argued that “Although Peru has laws concerning site protection, it lacks an explicit philosophy of heritage stewardship”. Does a CHM strategy exist in Peru for its cultural resources? How well developed is it? Could we say that the increase in tourism, which is strongly promoted by the government, is correlated with more systematic and holistic plans of research, development, preservation, and dissemination of cultural regions? While the number of well-defined projects is on the increase, thanks to legal and managerial support to local and regional governments, these still have to be

submitted to the appropriate agencies and be reviewed for their importance and feasibility. In the meantime, a culture of haphazard and judgmental funding is prevalent, with one-time “donations” of government funds for specific sites responding to no special plan or project and with little concern for aspects of regional organization, education, or other domains. These grants are the survival of a paternalist culture that could exploit the emotional link between a piece of heritage and a powerful political figure and/or national interest in the construction of identities.

The main influence for addressing cultural management issues in Peru comes mostly from the external standards of international agencies (UNESCO, World Bank) that frame the management of Peru’s ten sites on the UNESCO’s World Heritage List (henceforth WHL), rather than emanating from internal influence as a result of local concern for sound management practices. Indeed, the relatively easy process for WHL inscription—mostly politically backed—only requires a skeleton proposal without much substance in planning terms. Because the administrative process is such that the site only requires a management plan at a later stage—if ever—there is little inclination to write (i.e., prepare for enactment) the projects once the site has been WHL-nominated. Given that a site’s WHL status depends on the UNESCO-perceived (i.e., obvious) value and richness of its heritage, rather than the excellence of its management plan, WHL inscription really is just a starting point in the conservation program of a site. Unfortunately, the follow-up process is slow and intermittent, with poor funding and a usual lack of political will to address the pressing issues that often afflict the sites. This is ironic since Peru has strong technical know-how and a set of normative laws that support the conditions and quality of WHL sites. The problems that affect Peru’s WHL sites as well as other important resources are, rather, the result of obscure political and managerial decisions indifferent to long-term planning and lamentably much inclined to haphazard favoritism of certain sites. We have yet to see a state donation that favors a region or a set of sites, aimed at boosting their network qualities for preservation and promotion of cultural heritage.

Then, too, there is the thorny issue of non-WHL sites: what is their status in the Peruvian framework of CHM? This issue has been considered by Silverman in a recent review of cultural heritage stewardship in Peru. She cites the Constitution of Peru, which declares the nation-state to have sovereignty over all pre-Hispanic remains (Silverman 2006b: 61). This results in a concept of *intangibilidad*—that all sites are (ostensibly) considered important and must not be destroyed, even after study (Silverman 2006b: 63). But this intractability has led to circumvention of the law and outright (as well as too frequently unpunished) site destruction. The kind of CHM strategy I consider in this chapter could begin to mitigate the crisis of site destruction currently afflicting Peru.

In recent years, the auditing role of the Contraloría General de la República (Peruvian State Comptroller, CGR) and its cultural heritage division have become a novel source for monitoring the conditions of cultural heritage sites. The CGR fills an important task that national cultural institutions have often overlooked, acting as a tool of permanent *control* over the sequence of procedures of a project. As an essential tool in a CHM network-like enterprise, the concept of an external control over the workings of a project is seen with much apprehension by its members, but is of the utmost need given the complexity of a CHM project.

In Peru, the first long-term management plan aimed at a single archaeological WHL site is the 1999 Chan Chan Master Plan, which started 13 years after Chan Chan being declared by the UNESCO a heritage site in danger. The difficulties of Chan Chan’s Master Plan (*Plan Maestro*) are symptomatic of the conditions dominating the cultural scene when the main objective is limited to usufruct in the form of tourism rather than to redress the

problems that affect the site. Specifically, the issue is one of conflicting site use: management for the purpose of site preservation at the service of the tourism sector *versus* claims to the site made by its most proximal stakeholders: farmers making agricultural use of extensive tracts of Chan Chan's land and spring water, and the public looting of Chan Chan's abobes and mud walls as a ready source of building material. Obviously, conflicts between heritage tourism and the local population are not limited to Chan Chan or Peru. It is a general problem worldwide.

Chan Chan has attracted the attention of the conservation community with two workshops of the *Terra* project on earthen architecture (1998-99), thus creating local know-how for the physical conservation of the site. The progress of the ten-year management plan under the authority of the regional INC office has been slow and its successes intermittent. The WHL center (2006a) has commented on "progress made with regard to reducing the water level at the property and the restoration of the buildings; [and] efforts made to solve the problem of the resettlement of the occupants and farmers away from the property". Nonetheless, the WHL center requires further measures from Chan Chan's site managers, particularly: "to submit [in 2007] a report on the process of resettlement of the farmers and their sustainable livelihood, as well as progress on the stabilization of the phreatic levels in the property". The plan will continue to require updating and is given an "emergency" status.

Machu Picchu, inscribed in the WHL in 1983, has been in the news for the failure of its medium-term plan of 1998-2003 to prevent the growing encroachment on the site (notoriously from the community of Aguas Calientes at its base), higher human impact on its structures (from foot traffic and other behavior of tourists), and increasing geological problems (such as devastating mudslides) in the immediate area over the last years. The lack of technical progress for the conservation of the site in the last decade is ironic considering the enthusiasm for its current candidacy to the "new wonders of the world" list. While the WHL agency has repeatedly requested substantial improvement in the management of the area and decisive actions for its preservation, there has been little action until now to revamp such a plan and involve the several communities in the broader region in the management of Peru's premier archaeological site (WHL 2006b).

CONTEXT FOR THE PRESERVATION OF CULTURAL HERITAGE

Looting and Trafficking

The activity of *looting* is identified as a common culprit when assessing the problems of Peruvian cultural heritage management. Prevention of looting is extremely difficult as it affects the countless isolated cemeteries around the country, in rural areas far away from urban settlements and regional offices of the INC.

Looting has two aspects, popular and professional. In Peru looting is a periodic pastime in popular culture. On the north coast looting pre-Hispanic sites was (and still is) a common part of Easter and All Saints Day celebrations. The professional aspect of looting is the national and international antiquities trade. The damage by both forms of looting is obvious in thousands of mutilated sites across Peru. What remains unstudied are the effects of professional (i.e., massive and organized) looting in the illegal economy of the country.

Looting is an important element of the problem but only in part: the driving force for professional looting is the *trafficking* of antiquities. Supply and demand are

economic principles constituting this dyad. The “loot” that has been extracted from destroyed monuments and ransacked graves sits hidden or exhibited in private collections, which are the result of trafficking. And in Peru (as elsewhere) there is a veil of mystery and safety around the creation and maintenance of private collections. Indeed, lay people who visit private collections too often admire the collector’s interest in—even knowledge of and professed commitment to—Peru’s cultural heritage, without recognizing that avaricious collecting is the stimulus for looting. Collectors may be very vocal, even brazen, in their disregard for the law of the land, which they always claim is ineffective and arbitrary. Thus, one frequently hears national collectors say that their activity saves objects that would otherwise end up in foreign collections. In making this “patriotic” assertion they are simultaneously underlining the inefficiency of the State to manage and secure collections.

For several reasons, however, the reign of the collectors may be dwindling: there is more efficient management of sites and site museums, more private awareness of the impact of cultural heritage as a genuine public asset, and more stringent laws and bilateral accords aimed at reducing trafficking across borders. However, trafficking is a lucrative business; therefore its supporters will reinvent themselves as has happened with other illegal endeavors in the region. Unfortunately, the negative impact on cultural heritage is unlikely to cease, even if it declines somewhat.

The success of Peru in controlling the active trafficking of archaeological objects has been variable, with some memorable victories on the external front: for instance, the return in 1982 of a valuable collection from Washington D.C., today curated by the Museo del Banco Central de Reserva; or more recently, the publicized recovery in 2006 of a Moche gold crown by Scotland Yard and Michel van Rijn; and the well publicized return in 1998 of an illicitly exported Moche gold back flap [Note 3]. Indeed, Peruvian successes have an international cooperative dimension. Agencies such as the UNESCO, Interpol, and states subscribing to bilateral patrimony agreements with Peru (such as the United States) are active partners in the enforcement of Peru’s own laws about its national dominion over remains of the pre-Hispanic past.

On the internal front the quick recovery of trafficked materials from the site of Sipán and rapid implementation of an outstanding archaeological project there stands as an isolated but immeasurable event in the attempt to restrain looting at its root. Since this last event, the public conscience about the importance of preserving the country’s heritage has held fast with the participation of communities in its trusteeship, with a drive to “appropriate” their heritage (see, especially, Atwood 2003). In this process, there is a need for balance between the laws of heritage and community participation; but that is another subject, as is the future inheritance of private collections.

Laws, Enforcement and International Treaties

Peru has had three cultural heritage laws (*leyes del patrimonio*) in the last two decades (INC 2007; see discussion in Silverman 2006b). These norms have always underlined a basic precept: all pre-Hispanic artifacts found underground and on surface monuments are property of the State. This concept is reiterated in the last version, Law 28296 of 2004: “Every building part of the Nation’s pre-Hispanic cultural heritage is property of the State, as are its integrating parts and accessory elements and its features discovered or to be discovered, independently from being located on private property or public trust lands” (translation mine). It should be understood that the “features to be discovered” in sites that

are not currently recorded as “cultural heritage” are also protected State property, allowing for inclusion of sites discovered through future research.

The current distribution of museum artifacts in the country is a result of the lack of enforcement of the mentioned precept. Many private museums hold artifacts found either by archaeological investigation or looting activities on private lands, or artifacts obtained from looting and bought in the art market. Granted, even though these museums are in private hands, a great majority of their artifacts are registered with the INC. However, a past lack of control over these collections linked with trafficking fomented the creation of fakes or copies and the selling of artifacts. A stronger control by the INC in museums that hold cultural heritage *in trust*, a closer supervision of the fee-based loans by private and national museums for exhibits abroad, and the existence of better enforcement at customs checkpoints have much improved the conditions for preservation of cultural heritage.

The opening of archaeological sites to visits, the expectations of novelties linked to the past, and their integration into an increasingly larger cultural network has raised public awareness of the potential and benefits of having well managed sites open to the public and in continuous activity. On the international front several successes are the result of bilateral treaties that Peru has signed with countries interested in stopping art traffic. The failures are not due to a lack of interest of the Peruvian government but to the continuous (albeit decreasing) influence of “retailers of art” in the decisions of their governments. But a different category of threat is internal to Peru: destruction of the cultural heritage through development (urban, agricultural and commercial). I discuss the development crisis later in this chapter.

While the 1970 UNESCO *Convention on Illicit Import and Transfer of Ownership of Cultural Property* is an important piece of legislation subscribed to by Peru, it is the bilateral agreements between Peru and other governments that provide safer means for stopping the trafficking of cultural heritage. The most important Peruvian bilateral treaty is with the United States, which otherwise is a greedy market for artifacts of Peruvian heritage. An agreement with the United States in 1981 allowed the recovery and return of archaeological, historical and cultural goods that were robbed, as was the case with the speedy repatriation in 1982 of the collection curated by the Museo del Banco Central de Reserva. Then, a five-year *Memorandum of Understanding* (hereafter MoU) was signed in 1997 (Department of State 2007). The MoU reinforced the protection of heritage by imposing restrictions on the import of archaeological and colonial materials. The MoU was renewed in 2002 and is up for renewal in 2007. A Congressional hearing was held in February 2007 at which a number of archaeologists provided written testimony and Dr. Anita Cook, a member of the Society for American Archaeology, provided oral testimony. As of late Spring 2007 it appeared as though the Peru MoU would be renewed, but this has not yet happened as this volume goes to press. The renewal is not automatic and is contingent upon progress within Peru in the enforcement of norms and actions against trafficking. Traffickers do have their say in those same hearings (and bear in mind the overly successful influence of the art dealer lobby in the U.S. concerning the U.S. side of antiquities legislation). The consequences of the United States Customs letting down their guard and allowing minor trafficking to thrive could be very detrimental to the progress made in cultural heritage awareness in Peru [Note 4].

The situation in Europe also warrants attention given the importance of several countries as major hubs of the international market in illicit antiquities. Austria and Germany have *not* signed the 1970 UNESCO convention, although Peru has a MoU on trafficking

with Austria and is about to sign one with Switzerland. The situation in Germany has worsened because a new law provides that artifacts in the hands of dealers will be excluded from prosecution if they have not been “officially” published in the official gazette. Technically then, artifacts sold in Germany could be traded in countries like the United States.

Development

One of the greatest challenges Peru faces for the preservation of its cultural heritage is the destructive threat posed by urban, agricultural and commercial development. Too often archaeological sites are literally bulldozed by entities/persons who then claim to the INC that they didn’t know they’d erased an archaeological site—they thought it was a hill. Peruvian newspapers have been publishing photographs and articles about this kind of archaeological depredation for years. Seldom does the INC take judicial action, and when it does it rarely wins against the despoilers; fines are too frequently reduced to meaninglessness if not vacated.

As this volume goes to press a group of distinguished Peruvian archaeologists directing the most important projects on Peru’s north coast have rung the alarm, warning about a new attack on the cultural patrimony. A *proyecto de ley* (proposal for a new law) has been presented to the Congress by Congressman Carlos Bruce Montes de Oca and the proposal was quickly passed before the archaeological community learned of it. This Law 394/2006-CR promotes the sustainable development of tourist activities at sites recognized as cultural patrimony, such sites therefore being defined as tourist resources (*La República*, 11 June 2007). The law would give archaeological sites in 30-year concessions to private developers so that they can develop 4-star hotels and 4-fork (i.e., upscale) restaurants adjacent to the archaeological sites. Such developments would necessarily have negative impacts on the archaeological sites. Any concession-based development at sites on the WHL will surely be in contravention of WHL zoning requirements. There is a bizarre irony to this new law since the hotel, alimentary and commercial developments adjacent to Machu Picchu have had such negative impacts on Peru’s premier site that the UNESCO has repeatedly warned Peru that Machu Picchu will be placed on its official “List of World Heritage in Danger” if corrective measures are not taken (and see discussion in Silverman 2006b). Yet the new law promotes these WHL-*proscribed* activities. It is difficult to know what impact the removal of Machu Picchu from the WHL would have for the site’s future and tourism to Peru. If this happened, I think visits to the site would not diminish but, rather, free of any constraints, would increase in the high season with private services enterprises flourishing in a rampant manner.

But there is another side to this issue. Do urban development, agricultural expansion, and employment-generating business serve a greater good in Peru than highly romantic or nationalistic considerations of the past, boosted by the high notion of preserving cultural heritage as promoted by heritage professionals? This question has been raised, at the general level, many times in the scholarly literature and it is certainly debated in Peru. In my opinion, the debate is one sided as the public is mostly uninformed of the risks to cultural heritage, while politicians actively serve obscure agendas. In the future, CHM projects created as a conglomerate of technical and political perspectives and objectives could serve as a solid vehicle to conciliate the two points of view. They will plan to run archeological sites with a sustainable strategy—decreasing the risk of destruction and securing the long-term preservation of the site—while at the same time ensuring that it will remain a lucrative asset for a region.

Government Tourism Policies: PromPerú and Pentur and Autonomous Options

The policies for the promotion of tourism in Peru are handled by the Comisión de Promoción del Perú (hereafter PromPerú). This office creates the “themes” promoted in Peruvian exhibits at major international tourism fairs, where they offer creative and diversified themes, although with limited success: eco-tourism (archaeology, mountains, jungle) offers are popular while culinary and beach resources aimed at foreign tourists seem to create less interest. The 2001-2006 period saw intense promotional work by PromPerú as it sought to diversify the country’s tourism offerings.

Machu Picchu remains the beacon for attracting tourists with a steady increase in the number of visitors over the past five years. There is awareness at various official levels up to the UNESCO that Machu Picchu cannot permanently sustain this onslaught of tourists. Therefore, attempts are being made to diversify the country’s tourism offerings. For instance, during the 2001-2006 government and by special initiative of the First Lady, Eliane Karp, a five-pole plan was envisioned as the seed for development of new destinations. This is an example of the continuing haphazard funding to archaeological research for tourist purposes. Even though this plan chose extraordinary monuments, it limited the “development” plan to research and conservation at a single site (Choquequirao) rather than an entire region. This kind of approach may have little consequence for improving communities in a key site’s region and it fails to create a network of sites to enhance the “attractiveness” of a cultural region. It is, on the other hand, a blessing for the few researchers whose work is assured for several years.

Potentially more effective may be PromPerú’s marketing campaign called “Pack Your Six Senses. Peru – Land of the Incas”. Ads for a broad geographical range of Peru’s archaeological, ecological, ethnographic, and historical attractions appear widely in a U.S. magazines and a series of exciting TV ads were aired briefly two or three years ago, when the print ads also first appeared (Helaine Silverman, personal communication, 2007). It would be interesting to know if these ads have had their desired impact in terms of increased visitor revenue *versus* the expense of promoting tourism. If not, it may be time for a radical new focus of PromPerú’s promotional strategies.

Tourism statistics for major sites are available. The January 2007 Executive Summary of the Ministry of Tourism (Mincetur 2007) indicates that in 2006 there were 6,860 visitors at Choquequirao and 21,448 at Caral, while 691,600 tourists visited Machu Picchu in the same period. These numbers suggest that the large investment in Choquequirao may not be paying off, probably because of the site’s rather inaccessible location. Caral, on the other hand, located only two hours north of Lima, shows itself as an important cultural resource, as a result of good research planning and sound valorization of the site. Finally, the high visitor numbers for Machu Picchu might be positive in the eyes of politicians but constitute a real problem for the conservation of the site: the estimate exceeds by 144,100 the annual visitors quota (calculated at 1,500 visitors per day; during Inca times perhaps 500 people lived at the site) desired by the UNESCO. Perhaps the only measure that could control the flow of tourists would be to drastically raise the price of the entrance ticket, resulting in fewer and more affluent tourists and placing much less stress on the site. The negative effects of the site’s overexploitation by visits, the fires and mudslides around the site, and the building of bridges and roads are compounded by the current absence of a master plan to address the problems existing after the brief and ineffective 1998-2003 program; mismanagement after 2003 has not been corrected. This creates a very delicate

situation that can only get worse (Bouchard 1998). It is no surprise, then, that shortly after the April 2007 visit of a WHL-UNESCO supervisory team a new consortium has been formed to prepare a new master plan.

Finally, the *Plan Estratégico Nacional de Turismo* (hereafter *Pentur*) has planned a 10-year long-term strategy “to organize, promote and direct a sustainable and competitive development of tourism activity [...], by means of integrated, arranged and decentralized processes, driving economic and social development, generating labor [...] and guaranteeing the valorization and conservation of national historical, natural and cultural heritage” (Mincetur 2005: 20, translation mine). It is worth noting that this new plan is based on the previous 1999 program that was aimed at developing four projects on the monument-rich north coast. The new plan includes the important component of promoting local management as it recognizes the driving force that communities and municipalities constitute for the development of cultural heritage programs. It also finds it practical to promote a policy of concessions of services and tourist infrastructure at major archaeological monuments and protected natural areas. In terms of cultural heritage the plan is somewhat general, for example, in explaining how the private concessions will actually contribute to the stewardship of monuments; it aims at “designing and implementing a concerted and decentralized program to ensure and prioritize the protection, valorization and sustainability of archaeological monuments in the country”. But such broad, ambitious and generic plans as *Pentur* are hardly “operational” as they lack coordination with active and well-funded institutions and agencies, such as NGOs permanently in the field with a wide array of development projects. Examples of the latter can be seen in the Spanish project in the Colca Valley, and the Italo-Peruvian Fund with its development project for the people of Sipán and Kuelap and their heritage resources. The new development project for Sipán has recently started in earnest, this time with important benefits for the town near the site.

A CHM plan must have guiding principles in which heritage is assessed both in its historical context as well as in its economic importance in a tourism network. But this requires conservation and promotion measures that are well prepared as an essential ingredient for contributing to the economy. A destroyed site does not create a viable resource and an ignored site becomes “inactive” heritage. In Peru the strategies of the tourism market, which are geared towards visitor numbers as is the case for Machu Picchu, have little logical rapport with the purpose of CHM projects. These are separately operating domains. But if combined, if they work in concert, cultural heritage *as* tourism can be an important incentive for economic growth and can promote heritage conservation in the regions where a unified strategy is deployed.

THE OBSERVERS AND PLAYERS

The Instituto Nacional de Cultura

In Peru, the INC is responsible for supervising all cultural activities in the country, from dance to archaeological heritage, with regional offices, site museums and archaeological sites as an important part of the INC’s logistical system. In terms of archaeology, the INC’s financial structure and primary objectives are limited to cultural heritage supervision, minimal site development and sometimes short-term emergency work. Site protection is not actively undertaken. Rather, the INC erects occasional mud-plastered adobe brick markers *in situ* on which are painted the name of a site and the numbers of the laws that ostensibly

protect it (without explanation of the premises of the laws). The INC has rarely if ever taken an active role in the development of networks of cultural resources (other than the system of national museums under its control, but which are not coordinated among themselves) and complementary social promotion.

The INC's role as stewards of the public heritage may be improved, however, by close ties with community initiatives that seek to enhance the visibility and preservation of cultural heritage, mostly at the sites managed by regional offices of the INC at the initiative of particular INC staff and/or community leaders. Unfortunately, due to financial constraints, a restricted mission statement, and complicated bureaucratic norms, the INC—with all its know-how—does not yet have the capacity to lead autonomous CHM projects that require a broader coordination. But, if the initiative were taken by tourism promotion and development agencies—with the potential support of national and foreign archaeologists, many of whom decide to “develop” their public interests independently—the INC could be, and should be, an important player in an integrated CHM ethic and practice.

Training and Employment of Peruvian Archaeologists

There are well-established archaeology departments in Peruvian universities in different regions of the country. There are many outstanding archaeologists in Peru (some of whom have national or foreign doctoral degrees) who meet any academic criterion applied. In the last two decades graduates have had more diverse employment options: they can work in the INC system, CRM projects, a few academic posts, and temporary research projects including those of their foreign colleagues.

However, neglected in Peruvian archaeological training—and this is true at most universities in the U.S. as well—is CHM. CHM is not part of the curriculum, save at one university in Lima. While some Peruvian archaeologists might have some experience in some aspects of a CHM project, only Federico Villareal University offers a MA degree in this aspect of the archaeological discipline. Moreover, the field of conservation still lacks a formal academic program and is currently supplied only by a small—but active—private institute in Lima (Yachaywasi) that prepares students in particular practical aspects of artifact conservation.

Colegio de Arqueólogos del Perú (COARPE): The Professional Guild

The Peruvian professional guild for archaeologists is the Colegio de Arqueólogos del Perú, better known by its acronym, COARPE. The guild was created in 2003 after several years of legal preparation. Its stated goal is to be the institution that gathers, represents and, to a degree, administers all local and foreign archaeologists who wish to conduct research in Peru, assuring the professional standards of its members and defending their interests. However, the legality of COARPE has been challenged within Peru by various Peruvian archaeologists because of several problematic administrative and legal issues.

COARPE needs to think carefully about its priorities. For instance, there was little reaction on its website in the weeks prior to the hearings about the renewal of the United States-Peru MoU (see above). To be fair, neither did the INC website explain the issue and its ramifications. For the record, one of the few web sites examining the problem was SAFE (Saving Antiquities for Everyone [Note 5]), an international non-profit organization dedicated to preserving cultural heritage worldwide.

Clearly, COARPE will still require a few years to mature. However, while still young, it should play a vital role in the issues that will ensure the safeguarding of Peru's cultural heritage. Importantly, the guild has the potential to show the civic relevance of its members and the cultural heritage in a country that has traditionally privileged neither.

Hopefully, too, COARPE will strengthen the already strong environment of collaboration and cooperation among Peruvian and foreign archaeologists, rather than act to inhibit it. Most foreign archaeologists are as passionately dedicated as most national archaeologists to the guild's professed goals of advancing the profession collegially, furthering the study of the ancient Andean past, and working with all colleagues to practice archaeology in the public interest at all levels, from community to the nation-state to the world.

INROADS INTO CHM

I have briefly reviewed above two cases of master plans for safeguarding archaeological monuments and their buffer areas: Chan Chan and Machu Picchu. They are the first CHM projects to be implemented in the country. As precursors in the field they have suffered from several important shortcomings: first, a lack of political power to manage the area under their control; second, a lack of continuity or weak legacy of the plan. As a result, the situation at both sites today is as precarious (if not more so) as a decade ago and heritage professionals are searching for new concepts and stimuli to jumpstart new directions for the future.

Projects created after these two pioneer cases have been varied and are, overall, characterized by efficiency and diversity. They have been successful because their scale has been limited and they have flexible planning strategies and as such have been able to deliver on a complex list of goals: research, community involvement, preservation, valorization and promotion. The cases now to be described—Cusco, the Vilcanota Valley, Huaca de la Luna, and Lambayeque—do not all conform to the definition of a CHM. Rather, they present contrasting trajectories in their insertion into tourist circuits in Peru and certainly in terms of the community role they play. These cases underline the fact that cultural heritage gains substantially when addressed as a sustainable, organized and reliable asset and product.

The City of Cusco: The “Naturally” Managed City

The city of Cusco [Note 6] and its hinterland are the classic and oldest tourist center in Peru. Cusco is the gateway to Machu Picchu, the most sought-after site in the country, and is an important destination in its own right. Indeed, its “naturally” historical setting of an architectural mix of Inca and colonial times has given Cusco, a WHL site since 1983, great attractiveness and popularity. Logically, this has engendered more services and welcoming businesses that have affected the urban face of the city. Silverman (2006a: 159) describes the city as “open-air site museum because in it [...] are displayed, interpreted and managed material remains of ancient societies”. But she adds, “the quality of management [by local institutions] is debatable”. It is certainly not sufficient to have many monuments on display, or “streets as showcases” open for visit if the urban adjustment is failing in preserving the city. The “honors” bestowed upon the city have hardly generated a concern with the relationship between accelerated and haphazard urbanization and a high quality standard for maintaining its cultural heritage. In this sense, a new master plan started in 2005 with the

important support of private cultural institutions seeks to tackle the quality of preservation of its heritage.

Cusco is also a pioneer as an early example of a management strategy to link resources of diverse historical heritage: for several decades sixteen of Cusco's and Urubamba's museums, churches and monuments have been joined as a network through an ingenious single (and optional) entrance ticket: the *boleto turístico*. However, not all agree. Silverman (2006a: 177) argues that this form of management does not allow much "initiative" to the tourist and impinges on the "experience" sphere. This is debatable, as possession of the ticket clearly "empowers" the tourist and facilitates their visit as they swarm from one attraction to the next, experiencing the several barrios of the city, while also visiting important monuments not included in the ticket. Indeed, it is remarkable that this plan has not been followed by other cities or regions.

The Vilcanota Valley: A New Approach to Regional Management

The Vilcanota Valley (the so-called "Sacred Valley of the Incas") is located 50 km north of Cusco. The Vilcanota Valley is a buffer zone to Machu Picchu and a region with rich heritage. The 2004 *Vilcanota Valley Rehabilitation and Management Project*, funded by the World Bank, illustrates a novel approach to regional scale management and is the most complex form of CHM in Peru. It supersedes the realm of cultural heritage to address the problems of the landscape in which these resources exist, including those non-material resources that are the local cultural traditions.

The long-term Vilcanota Valley Project is driven by a plan in which cultural assets are only part of the development focus. The other aspects of the plan are the historical and ecological "assets" of the valley. The project specifically focuses on investments in tourism management and services ("Tourism Capacity Building and Infrastructure Development"), urban services and infrastructure rehabilitation, population resettlement where necessary, local economic development, rehabilitation of historical and cultural and historical sites, and, importantly, strategic planning and municipal capacity building (see World Bank 2004). The project conceives of its scope in broad socio-economic terms to include the hinterland of the site of Machu Picchu, with a goal to improve the planning and services of the actual (and very chaotic) town of Aguas Calientes (at the base of Machu Picchu) as well as the active area that links them with the Inca Trail.

The program aims to avoid "irreversible losses of the heritage" by including tasks that are not aimed directly at physical aspects of monuments, but at improvements in the "sensitization" domain, from more dissemination work at the local level with capacity building of municipalities and communities, to "signage" and information for the visitors. In addition, improvements in sanitation, canals and transportation would contribute to building a sustainable environment and visiting patterns that have less negative impact on the landscape and its resources.

The Huaca de la Luna Archaeological Project: The Managed Site

The Huaca de la Luna Archaeological Project (HLAP) represents a small-scale, modest CHM project, which, along with high-level archaeological research, has been successful in the aspects featured in this site-scale strategy. The project has institutional support from Trujillo's national university and major financial support from the local Backus beer company. The HLAP management model [Note 7] is composed of the fields of conservation,

research, promotion and dissemination, tourism development, and development of human resources. While the HLAP has achieved an excellent balance and coordination of all four fields and their role in the project, two of them are exceptionally successful: *conservation*, with the creation of a team for the rich and complex painted murals which need immediate care, and the *promotion* of the site to the community with three pillars for an organized visit: circuit, guidance and recreation, amidst the archaeological complex converted into a very successful cultural center.

From the start of the project the scale was limited to Huaca de la Luna, while over the years, gaining in confidence, research has moved to other parts of the archaeological complex, mainly the large open plaza to uncover the urban sector of the site; research at the massive Huaca del Sol has yet to be programmed. There are surely financial considerations as to how much the project can assume for each monument so as to achieve the integration of large-scale academic research, site conservation and incorporation of that heritage into the social network. In the end such decisions are the central part of any management plan related to financial and know-how capacities, while from an “academic” point of view the complex should be developed and presented as the singular event it represents in the history of the valley.

The HLAP has recently designed, planned and is about to start building a new museum. The government has made a one-time donation sizeable enough to ensure the construction, and it is likely that completion of the museum contents and maintenance of the museum will be covered by other financial sources. One of the most important uses of the controlled environment of the museum will be for the conservation of objects found at the site. The murals themselves will be left in their original context, notwithstanding a high risk factor for their continued preservation. Yet it is in their architectural context that the murals are the most impressive.

The HLAP is at a critical point where the decisions taken are the result of the central idea of its development: the archeological experience of the visitor at the site in its real dimensions.

The Lambayeque Region: The Incipently Managed Region

The Lambayeque region has been at the forefront in the creation of new cultural resources in the last decades: it has two new national museums (Sipán, Sicán); its older museum, the Bruning, has been renovated; and there are two new site museums (at Sipán and Tucume). Indeed, the beautiful national museums of Sicán and Sipán have created outstanding museographic displays that have, quite simply, set a new standard in museum practice in Peru. All three national museums do an outstanding job of disseminating knowledge about the past to the public, and each with a different kind of museum script.

However, all the large financial investments in creating understandable and high quality displays of the rich cultural heritage of the region (extraordinary resources spanning an area of less than 80 km²) have not translated into a coordinated plan to prepare a network of resources, hence an integrated offer to attract visitors. The lack of a “Lambayeque Tourist Complex” is to be corrected by the 2006 Regional Plan (*Pertur* 2006; a detailed operative plan that is the outcome of the larger *Pentur* plan mentioned above) with a circuit that exploits three closely related themes: archaeology, nature, and living cultures (see also Elera 2006). The strategy of *Pentur* underlines a need for a macro-regional, interconnected network of resources in which Lambayeque’s attractions are enhanced by connecting to neighboring resources in the northern highlands, the Moche area (which itself lacks a

strong network) and even southern coastal Ecuador, only a few hours away by car. This is quite an ambitious task considering the limited progress made in the last decade to better integrate the numerous resources in the valley.

FINAL COMMENTS

The progress of CHM strategy has taken interesting paths in view of the challenges Peru's heritage faces in the real world. The first challenge is that CHM projects come in different shapes and sizes. CHM is a discipline still in formation as it adapts to the idiosyncrasies of working systems (national, municipal, and non-governmental institutions; national and foreign researchers; looters and traffickers; development interests; etc.) that have seldom favored solutions involving complex collaborative networks. Although there is good know-how about the technical aspects of research, conservation, and social development, there is less capacity to *imagine* CHM as a process aimed at creating sustainable environments (it is mostly about building, less about maintaining). There is also a lack of experience working in a network of diverse fields in the context of a region. In comparing the Vilcanota and Huaca de la Luna projects these differences are clear: the scale of the latter facilitates the success it is enjoying; on the contrary, the former case is a challenge for coordination of all the public branches involved.

Second, there is the issue of customary work habits in Peru. CHM is a new field. Especially when funded from external sources, it is a new challenge to follow guidelines, meet deadlines and ensure continuity in a sustainable mode. These factors are crucial in projects such as the Vilcanota Valley Project, where financing may be contingent upon completing tasks. In addition, the strong drive towards accountability and periodic monitoring of progress requires presentation of progress reports, which is often a novelty in Peru.

Third, obtaining financing for CHM is a challenge. While haphazard donations continue to exist as an option in the country, preparing well-planned grant proposals for national or international institutions will be increasingly necessary, although not necessarily successful.

Finally, a major challenge is to sensitize the populations to be affected positively, but sometimes negatively, by CHM's mandatory functional and spatial rearrangements. This has ramifications for the sustainability of CHM projects. For instance, people who are removed from archaeological areas need a clear explanation about why they are being relocated to prearranged zones, while villages favored by development programs need a clear explanation of how the improvements in their daily life are parallel to/must proceed with the preservation of cultural heritage, and how this heritage is one of their most valuable assets. (There also need to be national campaigns in this regard). Community awareness and managing their new legal empowerment—concepts much more complex than the superficial “tourism culture” taught to the local inhabitants who are addressed by the *Peñatour* program—constitute an essential pillar of CHM programs, and act to preserve, promote and enjoy cultural heritage in Peru.

Let me conclude by underlining, as an afterword, that while it is clear that existing CHM (or CHM-like) endeavors within Peru are faced with several challenges—most notably in the field of working habits, organizational skills and networking capacity among participants—the same challenges are, logically, faced in greater degree by large-scale multinational projects. One such project is the *Qhapac Ñan*, which seeks to integrate on the basis of a “common cultural heritage” the Andean countries through which the ancient Inca highway (“main Andean road”)

passed (Peru, Ecuador, Bolivia, Chile, Argentina; Colombia is also included in the project) so as to prepare “a single nomination for the inclusion of the *Qhapaq Ñan* in the World Heritage List, entailing an original and innovative regional cooperation process” [Note 8]. Despite challenges, this ambitious multi-governmental Andean project reveals a positive attitude and extremely healthy objectives—set at both national and international scales—aimed at starting complex joint projects with major significance for cultural heritage.

NOTES

1. Silverman (2006b: 59) argues that, “heritage stewardship and cultural patrimony (resource) management encompass the *social circulation* of sites in and out of circuits of perceived and actualized value or worth” [italics in original]. Furthermore, archaeological sites and other heritage resources not planned for immediate tourist circuits and similar promotional management must not be ignored, or allowed to be destroyed without careful evaluation of long-term management strategies, relative values, and possible importance in the future.
2. Dumbarton Oaks, a private U.S. museum and research institution in Washington, D.C., is currently granting a limited number of small grants “*intended only for the excavation of sites or the documentation and analysis of objects that are in imminent danger*”. Known for its outstanding collection of pre-Columbian art assembled by Robert Woods Bliss many decades ago, and subsequently acquired by Harvard University with attendant academic goals, it is very interesting that Dumbarton Oaks (most of whose grants are for academic research and conferences) recognizes that academic scholars could be involved in cases of emergency, undertaking *realistic* archaeology. But this type of research is seldom part of a CHM project.
3. See <http://www.museum.upenn.edu/Moche/moche.html>, accessed on 18 June 2007. The recovery of the object was made by the United States F.B.I. in Philadelphia. The object was presented to Peruvian Ambassador Ricardo Luna and temporarily loaned to the University of Pennsylvania Museum for a three-week exhibition following which it was repatriated to Peru.
4. A remarkable publication is the 1983 (republished in 1985) *Peruvian Antiquities: A Manual for United States Customs*. This 74-page volume is well illustrated with pre-Columbian and colonial era objects that exemplify the kinds of materials being smuggled into the United States. The volume includes contributions by leading scholars about the materials and cultures illustrated as well as essays on the importance of archaeological context and the devastating impact on the cultural patrimony caused by the theft of Peru’s past. The publication was prepared by the Department of Cultural Affairs of the Organization of American States and has forewords by the then First Vice-President of Peru, U.S. Secretary of State, and Secretary General of the OAS.
5. See <http://www.savingantiquities.org>, accessed on 18 June 2007.
6. Cusco is the Spanish spelling preferred in the city today. Cuzco is the spelling most commonly used when dealing with the Inca city. Qosqo is the spelling adopted by the municipality under a former mayor, Daniel Estrada. In this paper, dealing with the contemporary city, I write Cusco in deference to local sensibilities there.
7. The Huaca de la Luna Archaeological Project describes its “management model” on their promotional CD-ROM but unfortunately not on their website: see <http://www.huacadelaluna.org.pe>, accessed on 18 June 2007.
8. See <http://whc.unesco.org/en/qhapaqnan>, accessed on 18 June 2007.

REFERENCES

- Atwood, Roger, 2003, Guardians of the Dead. *Archaeology* 56 (1): 42-49.
- Bouchard, Jean-François, 1989, *Machu Picchu: Arquitectura. Evaluación y Diagnóstico. Medidas de Conservación*. Misión de Cooperación, Lima.
- Contraloría General de la República, 2006, Acciones de Control Realizadas. Lima. <http://www.contraloria.gob.pe/ma/macontrol.htm>, accessed on 18 June 2007.
- , 2005, Machupicchu, Auditorías de Gestión Ambiental y de Patrimonio Cultural. Lima. http://www.contraloria.gob.pe/ma/interiores/libros/Machupicchu_libro.pdf, accessed on 18 June 2007.
- Department of State, 2007, *Memorandum of Understanding USA-Peru (1997)*. <http://exchanges.state.gov/culprop/pe97agr.html>, accessed on 18 June 2007.
- Elera, Carlos, 2006, El Museo Nacional Sicán: estudio de un caso de gestión cultural en el ámbito rural de la Provincia de Ferreñafe. In *Casos de Gestión Cultural en el Perú*, pp. 61-70. Organización de Estados Americanos. <http://sic.conaculta.gob.mx/documentos/847.pdf>, accessed on 18 June 2007.

- Instituto Nacional de Cultura, 1999, *Chan Chan: Plan Maestro Para la Conservación y Manejo del Complejo Arqueológico. Resumen Ejecutivo*. Trujillo, Perú.
- _____, 2007, Ley N° 28296 - Ley General del Patrimonio Cultural <http://inc.perucultural.org.pe/serv4.shtml>, accessed on 18 June 2007.
- Mincetur, 2005, Plan Estratégico Nacional de Turismo, Pentur, 2005-2015), Ministerio de Comercio y Turismo, Lima. <http://www.mincetur.gob.pe/turismo/OTROS/pentur/pentur.htm>, accessed on 18 June 2007.
- _____, 2007, Resumen Ejecutivo – Enero 2007, <http://www.mincetur.gob.pe/turismo/OTROS/Resumen%20Ejecutivo%20Indicadores%20Tur%C3%ADsticos-Ene07-12mar07.pdf>
- Navrud, S., 2005, Valuing cultural heritage: lessons learned. In *Structural Studies, Repairs and Maintenance of Heritage Architecture IX*, C.A. Brebbia and A. Torpiano eds., pp. 95-100. Wit Press, Southampton.
- Petur, 2006, Concertado Plan Estratégico Regional de Turismo de Lambayeque, 2005 – 2015. Plan Operativo Regional 2006-2007. Región de Lambayeque. http://www.regionlambayeque.gob.pe/w_turismo/PER-TUR%202006.pdf, accessed on 18 June 2007.
- Silverman, Helaine, 2006a, The Historic District of Cusco as an Open-Air Site Museum, In *Archaeological Site Museums in Latin America*, edited by Helaine Silverman, pp. 159-183. University Press of Florida, Gainesville.
- _____, 2006b, Cultural resource management and heritage management in Peru. *CRM: The Journal of Heritage Stewardship* 3: 57-72.
- World Bank, 2004, *The Vilcanota Valley Rehabilitation and Management Project*. Project Appraisal Document, PAD), Vol.1. http://www-wds.worldbank.org/servlet/WDSServlet?pcont=details&eid=000012009_20040826102459, accessed on 18 June 2007.
- World Heritage Centre, 2006a, Documents, Chan Chan Archaeological Zone. <http://whc.unesco.org/en/list/366/documents/>, accessed on 18 June 2007.
- _____, 2006b, Documents, Historic Sanctuary of Machu Picchu. <http://whc.unesco.org/en/list/274/documents/>, accessed on 18 June 2007.

The Bennett Monolith: Archaeological Patrimony and Cultural Restitution in Bolivia

ISABEL SCARBOROUGH

INTRODUCTION

This chapter is concerned with the links between the material culture of the ancient site of Tiwanaku and competing unifying ideologies of nationalism and indigenous pride in Bolivia. I narrate the story of the Bennett Monolith, discovered at Tiwanaku in 1932 by Wendell C. Bennett, as well as the associations of both the monolith and the archaeological site with the construction of national and cultural identity by Bolivians today. The monolith's journey from Tiwanaku to the capital city of La Paz, and then back to Tiwanaku in 2002, after 69 years, has marked different intellectual and political movements that have swayed this small Andean country for almost a century. The Bennett Monolith and Tiwanaku iconography have alternately been seen by Bolivians as symbolic of past Andean glory, nationalist sentiment, religious superstition, and ethnic restitution. Given Bolivia's recent sociopolitical history and the role grassroots social movements and indigenous political parties are playing in shaping the country's governing structure, it is important to examine and trace some of the myriad ways in which representations of cultural patrimony and heritage have been used in the effort to challenge Bolivia's long-standing social hierarchy. Understanding the arduous process and negotiations that culminated in the return trip of the monolith to Tiwanaku and the implications of this return for the construction of a new unifying Bolivian identity based on discourses of indigenouness contributes to a clearer vision of ongoing transformative processes in Bolivian society today. I write this chapter from two entangled perspectives, that of a cultural anthropologist working in Bolivia and that of a Bolivian with deep attachment to her country of birth.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

BACKGROUND: THE SITE AND STATE OF TIWANAKU

Tiwanaku is a complex of ruins on the Bolivian altiplano or highland plateau. The site lies in a valley at 3,800 masl, about 70 km from Bolivia's capital of La Paz. This prehistoric urban site is "the only planned settlement in the Titicaca Basin built prior to the Inca settlements of the fifteenth century AD" (Stanish 2001:185). The dominant feature of the ruins is the massive, artificial terraced mound of Akapana, standing over 15 m high. To the southwest is the Pumapunku platform in whose eastern entry court the famous "Gateway of the Sun" may have originally stood (Kolata 1993: 99). Akapana is flanked to the north by the large rectangular Kalasasaya precinct which is connected by a megalithic staircase to a semi-subterranean temple, whose walls are dramatically punctuated by tenoned heads and in whose court stand three carved stone sculptures; this is where the Bennett Monolith was originally found. The Putuni complex is immediately west of the Kalasasaya. In addition to this civic-ceremonial architecture, a large urban settlement existed contemporaneously at Tiwanaku. Indeed, at its height, Tiwanaku was a sprawling city spread over 12 to 15 km² with a population of 30,000–60,000 inhabitants. Radiocarbon dating and stratigraphy of material culture place the Tiwanaku civilization between AD 300 to 1100, with the expansion of its influence dated to after AD 400 or 500 (Kolata 1993: 85–86, 243). At this time, the Tiwanaku empire held administrative centers and colonies from far south coastal Peru to the headwaters of the tropical Amazon in eastern Bolivia, and had penetrated as far south as the northern desert coast of Chile (Kolata 1993).

From the time of the Spanish conquest Europeans recognized the grandeur of Tiwanaku, yet there is a general consensus that Tiwanaku culture "remains the least understood of the New World civilizations" (Goldstein 2005: 50). Archaeologist Paul Goldstein attributes this situation to the fact that several cycles of conquest and ethnic displacement between the site's abandonment and the arrival of the Spanish chroniclers left Tiwanaku in a huge gap in the historical record. Additionally, the remote location of the ruins, depth of soil deposition at altiplano archaeological sites, and ever-shifting political realities in Bolivia, Peru and Chile (Goldstein 2005: 51) have contributed to this situation. Despite the fact that archaeological research at Tiwanaku has been carried out continuously for many decades, a recent estimate by the Bolivian Ministry of Culture states that less than 10% of the ceremonial core has been excavated (Rivera 2002: 19).

The lack of data on the site has caused a prolonged and ongoing debate about the chronology of Tiwanaku, as well as the characteristics of the rise and fall of this state. Archaeologist Wendell Bennett established the site's original chronology, based on his findings there and his studies of Tiwanaku pottery in private collections in the 1930s. Bennett made a preliminary classification of four different periods, which he named Early, Classic, Decadent, and Post Tiwanaku (Bennett 1934: 450). He cautiously added that "this stratigraphic set-up [was] not conclusively proven" (Bennett 1934: 477), and exhorted scholars to conduct further studies. The next attempt to define a cultural chronology was made by Bolivian archaeologist Carlos Ponce Sanjines. Ponce carried out extensive work in the site's core during the 1950s and 1960s and used radiocarbon dating to support his identification of five successive cultural strata in the Kalasasaya that he named Tiwanaku I through V (Alconini 1995). These phases became the yardstick by which time is measured in prehistoric Tiwanaku. Scholars who have conducted research on this culture have conformed to Ponce's chronology in one way or another, despite the fact that fitting different findings to this sequence has many times proven to be difficult (see Albarracin-Jordan 1996; Alconini 1995; Kolata 1993; Stanish 2001). Over time,

different archaeologists have developed varying schemes of different phases. The overall confusion is further exacerbated by Bennett's and Ponce's choice to tie chronological sequences to developmental stages such as "expansive" and "decadent" whose names have driven archaeological interpretation. New efforts to redefine the Tiwanaku chronology are being made by archaeologists currently working on excavations at regional and administrative centers of this Andean culture (Janusek 2004: 83); these scholars emphasize the critical importance of developing a valid chronological framework for comparative studies of the different Tiwanaku sites.

In terms of the nature of the Tiwanaku state, debate about this state revolves around whether Tiwanaku was a top-down expanding state with a homogenizing influence (e.g., Kolata 1993) or, conversely, whether the many and diverse "colonies" of this empire were heterogeneous and had greater autonomy (e.g., Isbell and Burkholder 2002). Researchers today largely agree that the organization and expansion of this Andean prehistoric polity was based on a pragmatic combination of conquest by military force, colonial outposts and trade (Browman 1997; Janusek 2004; Stanish 2001; Williams 2002). It is also now known that the large population of the Tiwanaku core was supported by an intensive and vast agricultural system of raised fields that exploited the challenging environment of the altiplano (Janusek and Kolata 2004; Matthews 1997). The production of surplus agriculture was one of the pillars of the Tiwanaku sociopolitical organization that was also closely related to a system of religious beliefs and specified rituals. It is believed that the combination of both explains why Tiwanaku's expansion took place in only a few select regions, such as where water and other agricultural conditions were favorable (Blom and Janusek 2004; Browman 1997; Isbell and Burkholder 2001).

Brockington et al. (2000) provide a further interesting perspective on the Tiwanaku state based on their research in the lower-lying Cochabamba Valley. They argue that the Andean region should not be seen as having a clear cut division between highlands and tropics, and propose a very close relationship between these two regions as early as the Formative era (and see Chapter 46 in this volume). Contacts between the two regions were not only based on trade, but evidence shows that large groups of jungle residents would make their way into the highland valleys and spend a season or two exploiting a different ecological region. In this sense, it could be argued that lowland people were performing their own colonizing settlement process and probably came into contact with Tiwanaku culture and developed a balanced relationship with Tiwanaku that included adapting and exchanging religious rituals and customs as well as material goods.

The organization and expansion of the Tiwanaku state seems to have varied according to circumstances; Tiwanaku used different strategies to achieve economic control, as well as the spread of their religious ideology. That Tiwanaku people co-habited with other populations is consistent with the fact that ceramics, textiles and other material culture reflect the dominance of a powerful culture together with a continuous open-ended interaction among populations.

TIWANAKU THROUGH THE EYES OF OTHERS: FROM COLONIAL TIMES TO THE TWENTIETH CENTURY

Tiwanaku has long been the subject of study and curiosity of many researchers. Numerous descriptions were made by the Spanish chroniclers who told of these large ruins as early as 1549 when Pedro Cieza de Leon described Tiwanaku's monumental stone structures in his

Crónica del Perú. Spanish interest in Tiwanaku was also stimulated by the Incas' appropriation of the site in their creation myth. But little was written or reported during the next century, except in the occasional travel journal. An explanation for this silence in scholarly writing is given by Albarracin-Jordan (1996: 14) who suggests that the social tension and indigenous uprisings of the eighteenth and nineteenth centuries against the Bolivian feudal system intensified repulsion and hatred against Indians by the ruling white class of this country, and consequently demoted their cultural achievements and expressions.

A change in attitude towards these ruins took place during the Wars of Independence from Spanish rule, when Tiwanaku and the pre-Columbian past were espoused by young independents as icons of the new nation. This notion is confirmed by the fact that in 1825, José Antonio de Sucre—Bolivia's second president and liberator—ordered the Gateway of the Sun at Tiwanaku to be dug out of the ground and raised as symbolic of the rising of the new nation (Ponce 1981). These nationalist sentiments were short-lived, as Bolivian republican intellectuals were later influenced by scientific racism in support of ideas on the innate criminality and inferiority of the indigenous Andeans. Writings of Bolivian scholars at this time portray Tiwanaku as either a symbol of a past that needed to be wiped out in order to move on to a more enlightened era, or as representative of a civilization forgotten by its indigenous descendants (Albó and Barnadas 1990).

Recognizably archaeological work did not begin at the site until 1863-1865 when American Ephraim George Squier visited Tiwanaku during his "travel and exploration in the land of the Incas." Squier explored and investigated the monumental ruins, writing a description of the site, drawing a site plan, and illustrating the condition of the ruins in a series of plates. He called Tiwanaku "the American Stonehenge". The German geologist Alphons Stübel worked at Tiwanaku in 1876-1877, during which time he photographed the ruins, drew panoramic sketches, and created a map of the site based on careful measurements. He later collaborated with Max Uhle on writing the first detailed description and interpretation of the site, *Die Ruinenstätte von Tiahuanaco* (Stübel and Uhle 1892). This book both defined the Tiahuanaco (as the site name was formerly spelled) pottery style and established the pre-Inca date of the site. But Uhle had not yet been to Bolivia. That trip came in 1894 (see discussion of Uhle's research at Tiahuanaco in Rowe 1954). The work of the Germans was followed by a French multi disciplinary team, led by Count G. de Créqui-Montfort, that carried out a study of "Andean man," including excavations at Tiwanaku (Créqui-Montfort 1906). Beginning around 1912 Arthur (Arturo) Posnansky, a Vienna-born Bolivian, became the key figure at the site, particularly in the *production* of Tiahuanaco as a national and, indeed, international phenomenon, for Posnansky interpreted Tiahuanaco as the "cradle of American man" (Stanish 2002: 171-172; see Posnansky 1945 and see below).

THE JOURNEY OF THE BENNETT MONOLITH AND ITS SYMBOLIC REPRESENTATIONS

Bennett's Discovery of the Monolith

The era of systematic scientific archaeology at Tiwanaku began with the project of Wendell C. Bennett in the 1930s. Bennett obtained conditional permission by the Bolivian State to carry out an archaeological mission at Tiwanaku in 1932. The news of his expedition resulted in protests voiced in the Bolivian newspapers, accusing the American archaeologist

of being a looter and thief only interested in expropriating the country's culture. Indeed, Bennett was asked to leave the country in a letter published by the local newspaper signed by the members of the Bolivian Historical Society (Ostermann 2002a). In the Bolivian winter of 1932 Bennett journeyed to Tiwanaku. His plan was to "excavate ten test pits of not more than ten square meters in surface area each, at any spots about the ruins of Tiahuanacu... the depth of the pit to be determined by the thickness of the cultural strata" (Bennett 1934: 369), in accordance with the rules set by the Bolivian government. His results were published in the *Anthropological Papers* of the American Museum of Natural History in 1934 and their value lies in his attempt to define a relative chronology at Tiwanaku (Bennett 1934: 476).

The tale of the monolith (as Bennett referred to it, stela being the term preferred by later scholars to indicate that it is carved) begins when Bennett's expedition attempted to dig the seventh pit within the sunken (semi-subterranean) temple. In his report, Bennett recounts how he found the stone statue in a prone position, with its head facing north (see Bennett 1934: fig. 31). Due to its size, the pit had to be widened in order to better reveal it, finally disclosing a monolith sculpted out of a massive boulder of red sandstone. The statue itself measured 7.30 m long by 1.30 m wide, and was intricately carved with iconography similar to that found on the Gateway of the Sun, such as the Running Figure (Bennett 1934: figs. 21, 28) on the headband and the Staff God traced on the figure's back (Bennett 1934: 438-439). Based on his own classification system in which the rise and fall of civilizations was linked to uniform cycles of growth, maturity, and degeneration (Janusek 2004: 83), Bennett classified the statue as from the "Classic Tiahuanaco" period. This system, albeit reflecting important observations about stylistic changes, interpreted them according to a highly subjective scheme.

The Bennett Monolith (Figure 55.1) portrays a standing human figure holding a kero (ceremonial drinking vessel) in the left hand and a staff in the right hand. Fish, condors, pumas and llamas are elaborately carved onto the headdress, waistband and ornaments of this figure. Another common motif is the lowland plant called "flor del Inca" (flower of the Inca), that made Bennett think of travel and trade connections with the tropics (Bennett 1934:436).

Bennett included in his report a detailed comparison of all the stone sculptures he found at Tiwanaku, and made suggestions on how they could be placed within his chronology, making note of the fact that different sculptures from different periods would sometimes be placed together within one space of religious worship. This report marked a turning point in Tiwanaku archaeology, and also denoted the end of Bennett's involvement with the monolith. Bennett hurriedly left Bolivia after finishing his work, as the country was on the brink of war with Paraguay over the contested area of the Chaco.

Arthur Posnansky and the Monolith's First Journey

Arthur Posnansky, who had been Tiwanaku's most prolific scholar up to that point, took an interest in the monolith. Posnansky was an Austrian naval engineer who had been nationalized Bolivian and had led a life right out of the pages of an action novel. At the turn of the twentieth century, he made his fortune dealing with the booming rubber trade in the Bolivian and Brazilian Amazon working for the Bolivian government. Posnansky was working near Lake Titicaca at the time when the Créqui-Montfort team was excavating Tiwanaku, and he visited the ruins and photographed them. He became mesmerized with Tiwanaku's architecture and spent the rest of his life as the self-termed apostle of this ancient civilization (Ponce 1994).



Figure 55.1. Left: Bennett Monolith on display in its new home, the Tiwanaku Archaeological Museum, located on the site. (photograph courtesy of Freddy Delgado, Oficina del Viceministro de Cultura, La Paz, Bolivia). Right: The Bennett Monolith in its long-term former home, in front of the main entrance to La Paz's National Football Stadium, where a replica of Tiwanaku's Semisubterranean Temple was constructed to house the Monolith and other Tiwanaku sculptures. (photo by William H. Isbell)

Posnansky wrote prolifically about Tiwanaku (more than 130 publications) and published dozens of photographs of the site. He made a topographic map of Tiwanaku in 1906, published a guidebook to the ruins, and made a silent film depicting his theories of Tiwanaku as the center of American civilization, among other efforts to preserve and divulge the value of Tiwanaku art. His magnum opus was published shortly before his death and is a two-volume collection entitled: *Tiwanaku: The Cradle of American Man* (1945), wherein he “asserted that Tiwanaku was the preeminent and most ancient metropolis of the ancient Americas, and that the intellectually advanced milieu that Tiwanaku engendered was ultimately responsible for every sophisticated civilization that appeared on the Western Hemisphere” (Kolata 1993:13).

Posnansky was friend and mentor to a several generations of Republican Bolivian intellectuals whom he influenced with his ideas of Tiwanaku's glory. Indeed, he was a man of action and took the preservation of these ruins into his own hands. Soon after Bennett left, Posnansky organized a visit to the monolith accompanied by the Director of the National Museum, Luis Hertzog, to finish cleaning the sculpture that Bennett had left lying in the original excavation ditch. Posnansky used railroad pilings to prop up the monolith and began digging in order to disclose the backside of the 20-ton figure. In his own account

(Posnansky 1945) he tells how he dragged himself in the sludge to lie underneath the monolith and, candle in hand, finished removing the mud off the back of the sculpture with his fingernails. He then marveled at the complex web of figures thus disclosed. He then wrote an article titled “Un idolo gigante hallado en el templo subterráneo del primer periodo de Tiwanaku” (a giant idol found in the subterranean temple of the first period of Tiwanaku), which he presented at the Twenty-fifth Congress of Americanists in Argentina in 1932, prior to the publication of Bennett’s report (Ponce 1994).

Having seen the monolith and its intricate carvings, Posnansky expressed his concern for the fragile state of the statue, which was easy prey to the destructive nature and ignorance of the inhabitants of the town of Tiwanaku—with whom he was openly belligerent—and to the “trampling of tourist boots” (Ostermann 2002b). Anthropologist Carlos Ostermann states that Posnansky’s proposed solution, which stemmed from a strong European influence on ideas of urban planning, was to relocate the sculpture to the city of La Paz, where it should be placed as a constant reminder of Tiwanaku’s achievements.

Posnansky strongly believed that the only way in which to preserve Tiwanaku’s patrimony for future generations would be to move all of its material culture to the Bolivian urban centers, and even before the discovery of the monolith he had already presented a number of projects to the Bolivian State to turn the Tiwanaku Valley into a game preserve and national park. He also encouraged Bolivians to incorporate Tiwanaku motifs into their art (Ostermann 2002b; Mesa Gisbert 1991) and was the originator of the neo-Tiwanaku architectural style when he designed and built the National Bolivian Museum at La Paz in 1922. Posnansky also worked with the young architect Emilio Villanueva to design the new soccer stadium for this city that, when concluded in 1930, sported a giant replica of the Staff God and other Tiwanaku iconography on its façade (Mesa Gisbert 1991).

In 1933, shortly after visiting Tiwanaku, Posnansky began single-handedly to carry out negotiations to transport the monolith to the city of La Paz, a project that he financed in its entirety. Having obtained the necessary permits, he put together a team of workers to take the monolith to the city, via the railroad line from Guaqui to La Paz, paying for construction crews to build a special branch from the railroad to the monolith’s location in the ruins. The monolith’s transfer was carried out successfully and it was placed at the southern end of the Prado or main thoroughfare of La Paz.

Even though the country and the city of La Paz were busy with the Chaco War, the arrival of the monolith caused a commotion and was the subject of heated protests. The newspapers of the time were filled with accounts of people voicing their outrage against such an imposition, calling it a “piece of rock” (*pedrusco*) bound to bring trouble, and an ugly reminder of a useless pre-civilized past. This represented the views of the white elite and/or wealthy mestizos, the literate minority who had access to the press. Nevertheless, a few voices were raised in its defense, most important of which was that of Franz Tamayo, the famous poet and indigenous supporter. Tamayo wrote a letter to the newspapers expressing that “El ojo maternal de la ciudad que mira [al monolito] cada día, buscará lo que pueda hacer para protegerlo contra las fuerzas destructivas de la naturaleza” [the maternal eye of the city gazing on [the monolith] every day will seek what it can do to protect it against the destructive forces of nature] (Ostermann 2002b: 18). The repeated protests were finally silenced and Posnansky performed an engineering feat to support and place the monolith on a pedestal in the midst of the busy La Paz Avenue. However, the strong opposition he encountered made him think this was not the best home for the statue (Ponce 1994).

That this issue was often in his thoughts is demonstrated by Posnansky's 1939 presentation of a design for what he called the "Plaza del Hombre Americano" to the La Paz City Hall. This plaza would be built on property adjoining the soccer stadium, and would be a replica of the semi-subterranean temple of Tiwanaku, in which the Bennett Monolith would be set as a centerpiece. As he would cover most of the project's costs, Posnansky quickly convinced the municipal government and set to work to move the monolith a second time.

The Monolith's Second Home and the Institutionalization of Bolivian Archaeology

By 1940 Posnansky had built a solid following for his ideas amongst the Bolivian intellectual elite. However, when he began preparations to move the monolith to the recently built Plaza of American Man he was publicly opposed by young elite liberals and by the working class mestizos and Indians of the Miraflores neighborhood where the stadium was located (Miranda 2002). The former were by then imbued with some of the idealism that would later be channeled into the Nationalist Revolutionary movement, and accused Posnansky of being a foreigner who liked to toy with the country's inheritance for his own self-promotion. The residents of Miraflores were unhappy because they thought that the monolith was "k'encha," the Aymara term for bad luck, and they argued that the Andean spirits were not pleased with the statue's uprooting. They also speculated that its evil eye might be transferred to the games played in the stadium next door. Posnansky was infuriated and responded with a public letter in which he exclaimed "Yo, el apostol de Tiwanaku, los maldigo" [I, the apostle of Tiwanaku, curse you]. That promptly quieted the opposition as people began to think Posnansky himself was the bearer of the evil eye (Gutierrez Aldayuz 2001:3). Posnansky poured money into this new project and had artisans from the town of Tiwanaku travel to La Paz and build stone walls replicating those found in the original temple. He then brought other lithic pieces from the Tiwanaku site and arranged the transfer of his beloved monolith from the Prado to its new home.

For many years, the people of La Paz have built on the k'encha reputation of the monolith and laid at its feet every bad thing that has happened in the city. It has been blamed for such varied events as floods, the death or illness of famous Bolivians, and the many coup d'états staged in this city from the 1960s through the early 1980s (Gutierrez Aldayuz 2001). The monolith, despite Posnansky's efforts, was never truly welcomed by either the elites who saw in it a reminder of "Indianness" (lo indio) or by the indigenous classes who saw its presence outside its original context as a disruption to the natural order of things and harbinger of the ill will of their gods.

Posnansky's death in 1946 marked the end of an era ruled by Bolivia's scientist elite, who were replaced by a nationalist government after the revolution of 1952. Nationalist leaders had attacked Posnansky while he was alive but, ironically after his death, they eagerly embraced his view of Tiwanaku as a glorious past uniting all Bolivians.

The nationalists envisioned a new Bolivia free from the taint of foreign imperialist influences. In light of this new outlook, important steps were taken by the Bolivian government in 1953 to institutionalize archaeology, as part of the greater goal of integrating the Bolivian indigenous majority into the nation's social life. Archaeologist Carlos Ponce Sanjines was a self-proclaimed pioneer and leader of this movement in which national identity was based on the disclosure and preservation of an Andean common past. He directed the State-funded "Centro de Investigaciones Arqueológicas Tiwanaku" (Center for Tiwanaku Archaeological

Research) for the following four decades and published numerous essays, articles, and books including a detailed description of the semi-subterranean temple whose first edition came out in 1963. To this day he is seen as the single most influential person in Bolivian and Tiwanaku archaeology (Rivera 2002).

In his writings, Ponce repeatedly labeled non-local scholars as “neo-colonialist and imperialist” (Mamani 1989). For him, one of the most grievous errors of foreign scholarship was Posnansky’s transfer of the Bennett Monolith and other pieces of Tiwanaku art to the cities, as their original contexts were mutilated and rendered useless for serious research. This concern became especially prominent when Ponce and his team of archaeologists undertook the task of excavating and restoring the original semi-subterranean temple (1961–1963), where Ponce lamented the spot left empty by the Bennett Monolith.

The second half of the twentieth century was marked by prominent Bolivian intellectual and social movements concerned with cultural and indigenous identity. These affected and were in turn influenced by Tiwanaku culture. This interaction resulted in the repatriation of the Bennett Monolith to its original location, but not before it had helped shape Bolivia’s and Bolivians’ ideas about cultural patrimony.

NATIONAL IDENTITY AND THE ARCHAEOLOGICAL PAST: THE SEARCH FOR THE BOLIVIAN SOCIAL SELF

The Bolivian nationalist movement of the 1950s was born of a genuine concern for the fragmented and fragile nature of the Bolivian national identity, caused not only by the virtually “feudal system” that had kept the indigenous majority in subordination since independence from Spain, but by the poor communications among the different geographic regions of the country. The leaders of this revolution took steps to solve these problems and turn the indio (Indian) majority of the country into producers and consumers by renaming them *campesinos* (peasants). An agrarian reform was implemented that returned the land to those who worked it, and a law was enacted proclaiming universal voting rights. Between 1958 and 1960 the government opened new roads connecting the highlands with the country’s eastern Amazonian lowlands and set up a system giving Andean highlanders land in the underexploited lowlands, as well as encouragement to become colonizers. This goal was not unlike the pre-Hispanic colonization system of Bolivia, which some of the nationalists claimed to have copied (Irurozqui 1997).

Throughout this era, and that of the military governments that struggled to rule the country from 1964 to 1982, as well as upon return of democratic elections in 1982, the intellectual and social movement of Bolivia’s indigenous highland people fought to acquire political and social power, voicing their demand for an autonomous indigenous cultural identity. Unlike the nationalist dream of incorporating indigenous peoples into a Western society, Bolivia began to construct a new model of Bolivian national identity rooted in the country’s multiple ethnicities and indigenous peoples: a multicultural mosaic united under one flag (Toranzo 1985).

In 1982, the Confederación Sindical Única de Trabajadores Campesinos de Bolivia (Sole Federation of Unions of Peasant Workers of Bolivia), or CSUTCB, broke off from the political parties that had created it and became a powerful instrument for the defense of indigenous rights, arguably leading to the massive participation of indigenous peoples in modern Bolivian politics (Rivera Cusicanqui 1982). The new ideology of a “multicultural and pluriethnic” Bolivia was also instrumental in the social protests organized throughout

the country in 1992 by the CSUTCB, to commemorate the five hundredth anniversary of Spanish colonialism in the Americas. As part of these protests, the Aymara indigenous nation undertook a symbolic takeover of Tiwanaku, and reclaimed the ruins as the capital of their new state (Kolata 1993). In La Paz, the Bennett monolith came under public scrutiny once again as it symbolized the appropriation and eradication of this ancient culture by Europeans (Ostermann 2002b).

Concurrent with these events, a workshop was organized at the National University of San Andrés in La Paz to discuss the issue of the monolith's repatriation to the "Aymara capital of Tiwanaku". Five years later, in 1997, the Association of Young Professionals in the city of La Paz adopted this concern as its own and began lobbying the Bolivian government for the transfer of the monolith to its original home. Repeated negotiations resulted in the enactment of two Presidential Executive Decrees authorizing this move (Gutierrez Aldayuz 2001), yet no steps were taken to apply them until 2000, when the archaeological site of Tiwanaku was inscribed in UNESCO's World Heritage List (see Chapter 54 for a consideration of Peru and the World Heritage List).

This designation unleashed a series of events beginning with a grant awarded by the German Government, by which a team of experts was summoned to clean and prepare the monolith for a possible move. The Bolivian government then channeled funds to build a special enclosed space, be it in La Paz or as part of a new museum at Tiwanaku, as the monolith needed a protected environment. The monolith had suffered significant damage from nearly seven decades of neglect and the ravages of the La Paz environment. The monolith was in a sorry state as wind, sun, extreme temperatures, bird droppings, and pollution (automobile emissions are among the worst culprits) in the highland city had all taken their toll. Furthermore, the great statue sported a bullet wound on one of its cheeks, from one of the city's many fracasas during military coups, as well as lesser knocks and scrapes. A commission was formed comprised of government authorities, archaeologists and art historians who supervised restoration of the sculpture, as the monolith once again became the topic of a heated debate, vented in the press, over whether it should be moved to Tiwanaku or kept in La Paz's Miraflores neighborhood (Rivera 2002).

What tipped the balance in favor of repatriation to the archaeological site was a public claim to the monolith presented by the Aymara villagers of the town of Tiwanaku, near the ruins (Miranda 2001). The reasons given by the Tiwanaku villagers and other Aymara leaders were that by returning the monolith, considered to be a "sacred ancestor" and symbolic of their "indigenous roots," the government would be giving the Aymara peoples some compensation for the many wrongs inflicted on their race by colonialism. In this way, the Aymaras at Tiwanaku appropriated and deployed the symbols and discourse of an emerging indigenous nationalism that would radically modify Bolivia's social and political structure in the new millennium.

THE FINAL JOURNEY: THE BENNETT MONOLITH AS SYMBOL OF RESTITUTION

The Bennett monolith was transported back to Tiwanaku in March of 2002. Representatives from the Aymara peoples in both the city of La Paz and the town of Tiwanaku undertook the organization of a series of ceremonies and rituals to mark several stages of this journey. The night before its transfer the mayor of La Paz, surrounded by a group of government and diplomatic authorities, wished the monolith a safe trip back to its original home. The

mayor's speech was laced with Aymara words as he named the monolith the city's older brother and urged it not to forget them. He then participated in a cleansing and blessing ritual performed by an Aymara ritual specialist or shaman who burned incense and other aromatic herbs while conducting a reading of coca leaves. The shaman concluded their libations and announced that the Pachamama or Mother Earth gave her willing consent for "her child to return home" (Rivera 2002).

The monolith was carried prone on the back of a specially built platform atop a trailer truck. People ran next to the truck waving flags and cheering, as it slowly made its way through the city and then across the altiplano. A couple of stops were made, first in the recently inaugurated Aymara university in the city of El Alto (above La Paz), where speeches were given and an escort of university students on bicycles joined the procession, and at the towns of Laja and Tambillo where the local Aymara communities received it with a feast and speeches. At the town of Tiwanaku, the entire village turned out to welcome the monolith with music and dances, and another ritual was performed by the Aymara shaman, asking the Pachamama to bless the new home of the statue. The monolith was then raised within a specially built enclosed space, that now forms part of a new archaeological museum and tourist center at the Tiwanaku ruins (Figure 55.1). The monolith is now the centerpiece of a museum targeted at foreigners as well as locals; the Tiwanaku community view foreign visitors favorably, as the villagers expect to benefit directly from tourist revenues (see Hastorf 2006).

The monolith's return journey to Tiwanaku was purposefully laced with symbols by the Aymara people to create, by virtue of association, a strong bond with the statue and invest it as the representation of cultural restitution. One of the symbolic discourses deliberately deployed at the time was the re-telling by Aymara political leaders of a myth when the press interviewed them about their thoughts on the monolith's return. These leaders told the story of Tupac Katari who led a well-known indigenous uprising against the Spaniards in the eighteenth century and who is believed to have said "I will die, but I will return turned into thousands to liberate our people" (Rivera Cusicanqui 1982). The Aymara leaders stated that the "sleeping giant" that was Tupac Katari had been reincarnated in the monolith. Various agents had used this messianic myth, many times before, to urge the Aymara people into political and actual battle. It was most recently appropriated at the 2006 inauguration of Bolivia's first indigenous president, Evo Morales, where Tupac Katari's return was said to be Morales' victory at the polls.

The Tiwanaku archaeological site also has played a prominent part in the symbolic positioning of indigenous nationalism. It was the site of Morales' recent presidential inauguration (*La Razón* 2006), and in 1982 it was the location where the manifesto was signed that resulted in the independence of the Bolivian peasant unions (Rivera Cusicanqui 1982). As has happened before, the Bennett Monolith has come to symbolize current social ideology and events at a time when politics in Bolivia have become "popularized" and the participation of indigenous leaders is becoming more prominent. Indeed, Bolivia's populist political party that is now in power is based on a strong indigenous nationalistic ideology espoused by a loosely knit network of grassroots social movements (Jackson and Warren 2005: 558).

CONCLUSION

In this chapter, I have endeavored to take the reader through a journey descriptive of both the monolith's story as well as that of Bolivia's progression through colonial and feudalistic haciendas, into nationalist revolution, and a new cultural and national identity based

on multiple autochthonous ethnicities. The importance of this narrative, I believe, lies in its ability to contribute to understanding the construction of Bolivian national identity as partially based on the selection and use of archaeological cultural patrimony, and symbolism derived from it (Kohl 1998: 225). The Bennett Monolith and Tiwanaku are good examples of this cultural construction. As we followed the Bennett Monolith from its discovery in 1932 to its symbolic restitution of colonial excesses at the dawn of the twenty-first century, we witnessed its alternate use by the European and Mestizo ruling classes to reaffirm their claims by *denigrating* the monolith's value, and as a symbol of national pride by indigenous majorities, asserting its *positive* value.

As Bolivians continue the struggle to consolidate the social changes required for crafting a national self, a follow-up on the fate of the monolith, and Tiwanaku itself, might be useful venues for future research on this topic, together with consideration of the direction in which Bolivian archaeology is headed. In the past decade, a new "native archaeology" has been proposed that would take the ideals of the nationalist revolution a step further, by bringing in the participation of Aymara and other indigenous scholars (Mamani 1989). This proposal fits well with the current Bolivian government's discourse of indigenous nationalism. Indeed, Evo Morales' administration has announced its intent for new excavations at Tiwanaku, in which Aymara archaeologists will play a prominent part. If this project is realized its results and findings should prove interesting in terms of seeing the new dimension that will be brought into Tiwanaku archaeology by the direct descendants of ancient Tiwanaku's residents. Continued research about this ancient society can be justified both in terms of generating archaeological knowledge about the Andean past, as well as for the better understanding that will result from the process of a modern nation asserting and conforming new configurations of itself.

REFERENCES

- Albarracín-Jordan, Juan, 1996, *Tiwanaku: Arqueología Regional y Dinámica Segmentaria*. Plural Editores, La Paz.
- Albó, Javier and Joseph Barnadas, 1990, *La Cara India y Campesina de Nuestra Historia*. UNITAS/CIPCA, La Paz.
- Alconini Mujica, Sonia, 1995, *Rito, Símbolo e Historia en la Pirámide de Akapana, Tiwanaku: Un Análisis de Cerámica Ceremonial Prehispánica*. Editorial Acción, La Paz.
- Bennett, Wendell C., 1934, Excavations at Tiahuanaco. *Anthropological Papers of the American Museum of Natural History* 34 (3): 359-491.
- Blom, Deborah and John W. Janusek, 2004, Making place: humans as dedications in Tiwanaku. *World Archaeology* 36 (1): 123-141.
- Brockington, Donald, David Pereira, and Ramon Sanzetenea, 2000, *Investigaciones Arqueológicas en las Tierras Tropicales del Departamento de Cochabamba – Bolivia*. Instituto Antropológico y Museo de la Universidad Mayor de San Simón. Cochabamba.
- Browman, David, 1997, Political institutional factors contributing to the integration of the Tiwanaku state. In *Emergence and Change in Early Urban Societies*, edited by Linda Manzanilla, pp. 229-243. Plenum Press, New York.
- Céspedes, Ricardo, 2002, Instrumentos musicales durante el Horizonte Medio (Caravanas Tiwanaku y su influencia). In *La Música en Bolivia: de la Prehistoria a la Actualidad*, edited by Walter Sanchez. Fundación Simón I. Patiño, Cochabamba.
- Créqui-Montfort, G. de, 1906, Fouilles de la Mission Scientifique Française à Tiahuanaco. *Verhandlungen des XIV Internationalen Amerikanisten Kongresses*, Pt. 2, pp. 531-551. Stuttgart.
- Goldstein, Paul S., 2005, *Andean Diaspora: The Tiwanaku Colonies and the Origins of South American Empire*. University Press of Florida, Gainesville.
- Gutierrez Aldayuz, Nadya, 2001, La triste historia de un monolito. In *Pulso*, Weekly Magazine, issue of November 16-22, 2001. La Paz.
- , 2001, Restauradores preparan al Bennett para un viaje. In *Pulso*, Weekly Magazine, issue of November 16-22, 2001. La Paz.

- Hastorf, Christine A., 2006, Building the community museum at Chiripa, Bolivia. In *Archaeological Site Museums in Latin America*, edited by Helaine Silverman, pp. 85-98. University Press of Florida, Gainesville.
- Isbell, William H. and JoEllen Burkholder, 2001, Iwawi and Tiwanaku. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 199-241. Kluwer Academic/Plenum Publishers, New York.
- Irurozqui Victoriano, Marta, 1997, Las buenas intenciones: venta de tierras comunales en Bolivia, 1880-1899. In *La Reindianización de América, Siglo XIX*, edited by Leticia Reina. Siglo XXI, Mexico.
- Jackson, Jean A. and Kay B. Warren, 2005, Indigenous movements in Latin America 1992-2004: controversies, ironies, new directions. *Annual Review of Anthropology* 34: 549-573.
- Janusek, John W., 2004, *Identity and Power in the Ancient Andes: Tiwanaku Cities Through Time*. Routledge, New York.
- and Alan L. Kolata, 2004, Top-down or bottom-up: rural settlement and raised field agriculture in the Lake Titicaca Basin, Bolivia. *Journal of Anthropological Archaeology* 23 (4): 404-430.
- Kohl, Phillip, L., 1998, Nationalism and archaeology: on the constructions of nations and the reconstructions of the remote past. *Annual Review of Anthropology* 27: 223-246.
- Kolata, Alan L., 1993, *The Tiwanaku: Portrait of an Andean Civilization*. Blackwell, Cambridge, MA.
- La Razón*, January 22, 2006. Una multitud en Tiwanaku fue testigo de un hito en la historia. <http://www.bolivia.com/noticias/autonoticias/detallenoticia30978.asp>
- Mamani Condori, Carlos, 1989, History and prehistory in Bolivia: what about the Indians? In *Conflict in the Archaeology of Living Traditions*, edited by Robert Layton, pp. 46-59. Unwyn Hyman, London.
- Manzanilla, Linda, 1992, *Akapana: Una Piramide en el Centro del Mundo*. Universidad Nacional Autónoma de México, Instituto de Investigaciones Antropológicas. Mexico.
- Matthews, James Edward, 1997, Population and agriculture in the emergence of complex society in the Bolivian altiplano: the case of Tiwanaku. In *Emergence and Change in Early Urban Societies*, edited by Linda Manzanilla, pp. 245-274. Plenum Press, New York.
- Mesa Gisbert, Carlos, 1991, *Manual de Historia de Bolivia*. Editorial Mesa Gisbert, La Paz.
- Miranda, Juan Manuel, 2002, 7/10 Museo lítico: el nuevo hogar de la estela Bennett. <http://www.bolivia.com/noticias/autonoticias/detallenoticia7404.asp>, accessed on March 15, 2006.
- , 2002, 7/03 La ciudad eterna de los Andes está de Fiesta. <http://www.bolivia.com/noticias/autonoticias/detallenoticia7236.asp>, accessed on March 10, 2006.
- Ostermann, Carlos, 2002a, 3/04. Bennett, el monolito khenchá. <http://www.bolivia.com/noticias/autonoticias/detallenoticia4438.asp>, accessed on 15 March 2006.
- , 2002b, Acerca del monolito Bennett y su traslado a Tiwanaku. *Revista de la Fundación Cultural del Banco Central de Bolivia* 6 (18): 17-32. January 2002.
- Ponce Sanjines, Carlos, 1981, *Descripción Sumaria del Templete Semisubterráneo de Tiwanaku*. Librería y Editorial "Juventud", La Paz.
- , 1994, *Arthur Posnansky: Biografía Intelectual de un Pionero*. Producciones CIMA, La Paz.
- Posnansky, Arthur, 1945, *Tiwanaku: La Cuna del Hombre Americano*. 2 vols. New York.
- Rivera Cusicanqui, Silvia, 1982, *Oprimidos Pero No Vencidos: Rebelión Campesina, 1800-1980*. Instituto de Investigaciones de las Naciones Unidas para el Desarrollo Social, Geneva.
- Rivera Sundt, Oswaldo, 2002, *Tiwanaku: Ciudad Eterna de los Andes*. Viceministerio de Cultura, La Paz.
- Rowe, John H., 1954, *Max Uhle, 1856-1944. A Memoir of the Father of Peruvian Archaeology*. University of California Publications in American Archaeology and Ethnology, vol. 46. University of California Press, Berkeley.
- Squier, Ephraim George, 1877, *Peru. Incidents of Travel and Exploration in the Land of the Incas*. Harper and Brothers, New York.
- Stanish, Charles, 2001, Tiwanaku political economy. In *Andean Archaeology I: Variations in Sociopolitical Organization*, edited by William H. Isbell and Helaine Silverman, pp. 169-198. Kluwer Academic/Plenum Publishers, New York.
- Stübel, Alphons and Max Uhle, 1892, *Die Ruinenstätte von Tiahuanaco im Hochlande des Alten Peru*. Verlag von Karl W. Hiersemann, Leipzig.
- Toranzo, Carlos, 1985, *Bolivia, País Multicultural y Plurilingüe*. Editorial HISBOL, La Paz.
- Williams, Patrick Ryan, 2002, Rethinking disaster-induced collapse in the demise of the Andean highland states: Wari and Tiwanaku. *World Archaeology* 33 (3): 361-374.

Modernity and Politics in Colombian Archaeology

CRISTÓBAL GNECCO

INTRODUCTION

The history of professional archaeology in Colombia began at the onset of the twentieth century with foreigners of different academic backgrounds (such as the German, Konrad Preuss, the North American, Alden Mason, and the Spaniard, José Pérez de Barradas), but soon after national researchers took over. With few exceptions, over the last six decades foreign archaeologists have avoided fieldwork in Colombia both because the country never experienced the development of social and political complexity characteristic of the Central Andes and Mesoamerica (and, thus, was academically less attractive), and because of the dangers created by the chronic violence that has swept the country since the 1950s. As a result, archaeology in Colombia has been carried out mostly by Colombians. This apparent “independence,” however, must be understood and situated by a description of the problems dominating Colombian archaeology, and that is the purpose of this paper. I have divided the exposition into three parts: the first deals with the relationship between archaeology and modernity, whose imprint is still felt, no matter how anachronistic it may seem; the second deals with the scientific phase of that relationship; and the third with the way it has been challenged and, to certain extent, superseded.

ARCHAEOLOGY AND COLOMBIAN MODERNITY

Colombian independence from Spanish rule proceeded over forty years. It started with peasant rebellions against heavy taxes around 1780, and lasted until the definitive defeat of the Spanish armies in 1819. The construction of the Colombian national community was predicated on social symmetry but constructed on profound inequalities. Once independence was secured internal domination was firmly established, mirroring the rigid system

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

of racial and social segregation imposed by the Spanish. Although there were several constitutional and legal allusions to equality and democracy throughout the nineteenth and twentieth centuries, discrimination along cultural (racial) lines was rampant.

Internal colonialism was at stake in the struggle between liberal and conservative ideas throughout the nineteenth century, very often disputed in battlefields that caused thousands of deaths in several local, regional, and nation-wide civil wars. While conservatives defended a colonial nation (Hispanic, Catholic, and segregated), liberals fought for a modern state (mestizo, secular, and integrated). This struggle was not won by either of the confronting parties; instead, in the cultural realm it resulted in a hybrid co-production straddling modernity and tradition (García 1989), configuring a Colombia characterized by “a system of abstract inclusion and concrete exclusion” (Martín 2003: 5). This contradiction is maintained by the relationship between modernity and nationalism: in Colombia, progressive functions of national sovereignty are coupled with powerful and pervasive structures of internal colonialism.

One of the main characteristics of the nation-state—the consecration of equal rights of all citizens, including the right to participate actively in the production of political authority—became the standard of modernity. Yet, in Colombia an imbalance existed between the promotion of republican ethics and the construction of the *other* (indigenous, Afro-Colombians, women), who was forbidden the status of citizen and deemed unfit to enjoy its rights. The definition of citizenship and its rights were enunciated from an androcentric and occidentally-centered locus; the self was centered in the civilized man. The project of modernity initiated in Colombia by the governing liberal elite of the mid-nineteenth century attempted to build an inclusive national (modern) identity; yet, native communities (an important part of the population and, more decisive, occupying more than three-quarters of the territory) were troublesome: while internal colonialism kept them subjugated and at bay, nationalism demanded their inclusion, based on an egalitarian ethic.

The Colombian elite, especially liberal, recognized the need for an instrumental knowledge capable of dealing with alterity; “social sciences” emerged to discipline discourses about identity. In 1882 Salvador Camacho noted the importance of non-scholastic sciences, particularly sociology, for the establishment of “the laws that preside over the historical development of those collective beings called nations” (Jimeno 1984:164). Two texts written some years later—the essay of Jorge Isaacs (1967) about the “tribes” of the Magdalena and the manifesto of Rafael Uribe (1907) for converting “savages” to civilized life—focused attention on the need for anthropological discourse. Issacs argued that anthropology should assess the level of civilization achieved by savages, an activity that would endorse their insertion into the national society. Uribe observed that the management (*reducción*) of savages would have to be mediated by their cultural particulars: “In sum, to apply to each one this criterion, derived from the study that anthropology has made of natural man, in his moral and physical aspects: the diverse human races are productive only when they are employed in the kind of work suited to the level of civilization they have achieved” (Uribe 1907: 24).

Late nineteenth century studies of “indigenous antiquities” were undertaken within the same mindset. Archaeology, albeit amateurish, was summoned to provide part of the rhetorical fuel needed to launch the modernist rocket. Miguel Triana, wrote about the pre-columbian Muisca of the Eastern Cordillera in 1922, stating that in doing so he was “establishing the positive bases of a national sociology, modeled on the autochthonous race formed here by geology and climate” (Triana 1972: 22). However, Ezequiel Uriceochea, one of the founders of an explicit archaeological discourse in the second half of the nineteenth century, made it

clear that non-professional endeavors, such as his and that of Triana, were to be followed by a truly disciplined practice: "I hope that a patriotic archaeology emerges; my little book could only be fulfilled if there were professional archaeology in our country" (Uricoechea 1984: 108). Uricoechea's modesty was grounded in his scientific training (he was a doctor, chemist, and astronomer) and stemmed from the fact that what he and others were doing was just the collection and esthetic description of antiques. However, the scientist that Uricoechea was surfaced in many parts of his work (for instance, he made chemical analyses of two gold Muisca pieces with the idea of making comparisons and formalizing study of "the art of the ancient dwellers").

Although the professionalization of archaeology (its formalization into a discipline) would only occur several decades later, the discursive consequences of the amateur enterprise were numerous and far-reaching. The most important product was central to weaving the new social fabric: *pre-Hispanic* alterity was demonstrated and rationalized as the cornerstone of national identity while, simultaneously, *contemporary* alterity was marginalized and "invisibilized". One of the basic ingredients in this segregation was evolutionism: the most "civilized" *pre-Hispanic* alterity was shown to underlie nationality, a necessary (and unavoidable) link in the evolutionary path towards simple civilization (modernity), planted by Europeans and tended by their Creole inheritors. The *pre-Hispanic* society overtly incorporated into national identity was the only one deemed civilized: the Muisca of the eastern highlands. "Civilized" had a precise meaning: stratified, with several decision-making levels, distinct institutions, a legal apparatus, religion, army, and taxes. That is, civilized society different in degree, not in kind, from contemporary European societies. Uricoechea stated that Colombian nationality was built upon the "nations" that populated the *Andean* region, thus excluding the "barbaric" nomads of the *lowlands*. The difference was based on the western dichotomy between sedentarism and nomadism, central to the legal conception of territorial rights. By virtue of their characterization as civilized, affirmed on the basis of the archaeological "evidence," the Muisca were discursively presented as an alterity understood as primordially Colombian. This vindication of *pre-Hispanic* civilizations contributed to the production of the civilization-barbarism dichotomy that still pervades the discourse of the Colombian state, whether dealing with the ethnic other or with the criminal actions of guerrillas.

Archaeology contributed significantly to the modernizing apparatus set in motion by liberal, republican elites; the role accorded to archaeology was the rhetorical incorporation of an indigenous past alterity, a necessary complement to its contemporary suppression; in doing so it contributed to the creation of a national identity and played an important role in the promotion of national pride. *Pre-Hispanic* monumental sites (such as San Agustín and Tierradentro, in the southern Andes of Colombia) and their associated paraphernalia (gold work, stone statues) were adequate theaters for the *mise en scène* of nationalism. The emphasis on monumentality, at the expense of "less civilized" cultural traits, was part of the rhetoric of civilization, whose origin was located in the "civilized" *pre-Hispanic* societies; the contemporary heirs were excluded with the argument that they were just degraded remains of their more brilliant ancestors. Consistent with the discriminatory and anti-modern (no matter how modern its rhetorical outlook may have been) heterodox nationalism characteristic of Latin American countries, archaeology contributed little to dissolving the rigid, hierarchical order inherited from colonial times; instead, it helped solidify it.

The division of alterity between past and present built an indigenous present/absent dichotomy that fueled internal colonialism. As Fabian (1983) shows, temporal distancing (allochronism) is one of the main discursive strategies for constructing alterity, keeping

the *other* at a distance (more temporal than geographical). The “typological” and “physical” time of archaeologists naturalized the archaeological-anthropological construction of living aboriginal peoples into an *other*, effectively localized in a different time, a time that demanded to be attracted, through inclusion, to *our* time, the time of civilization. The morality implied in allochronism produced a “good” past alterity but a “bad” present one.

The discursive degradation of the contemporaneous other (the argument above, that the contemporary Indians are the degraded remains of brilliant pre-Columbian ancestors) explains the obsession Colombian archaeologists have had with cultural discontinuities, catastrophes, and diffusions. Diffusionism is a central element in the role played by archaeology in the reproduction of internal colonialism, even today. Diffusionism writes an atemporal history of allegedly timeless societies (Fabian 1983: 18) through its use of spatial and evolutionary comparisons. Thus, the determination of origins is more political than factual (Pineda 1984: 202-203). Explanations positing a Mesoamerican or Peruvian origin for pre-Hispanic Colombian societies were, and still are, common. The link to civilized others from abroad helps to valorize the civilized others within; it also lent credence to Spanish colonialism and to internal colonialism: both set about civilizing the uncivilized other.

Archaeology also helped to rationalize a schizophrenic alterity through catastrophism. Colombian archaeological discourse continuously alludes to annihilation, disappearance, or continuity: archaeological subjects—societies, cultures, even sherds—do not change but disappear. In 1854, for instance, Uricoechea (1984) wrote that his book about the Muisca was the place where the memories of indigenous societies were to be found: “Let us be the ones who render the last tribute to those who disappeared, succumbed to the yoke of slavery and ignorance, and let us erect, with our efforts, the last monument to the Indian, to his talents and his knowledge”. The “Indians,” then, only lived within the pages of his book. The disappearance of pre-Hispanic societies implicit in catastrophism (due to invasions, migrations, annihilations) implies their definite annihilation in time and space and their textual salvation (*sensu* Clifford 1986: 112)—a rhetorical salvation, not social or political, to be sure.

The “more advanced” pre-Hispanic societies—those with metallurgy, statues, monumental public works—were eliminated from the historical landscape by catastrophes and replaced by “backward” societies all across Colombia—those societies constructed by colonial and republican discourses about ethnic alterity. And to the “backward” societies invading peoples give the gift of culture: civilization to the invaded. Thus, archaeological explanations mirrored Spanish and republican policies towards the *other*. Catastrophism is linked to sorrowful statements about lost “wonders.” Written out of history by the catastrophic strokes of archaeologists, the marvels of pre-Hispanic civilizations fell to smug invaders. And through colonial relationships alterity was kept at distance, and discriminated against.

AN ARCHAEOLOGICAL MODERNITY

Since the mid-nineteenth century Colombian governments have attempted to solve the supposed deficit of modernity. By the first decades of the twentieth century governing elites believed that modernization of the country was trailing behind its rhetorical promotion. Railroads had been built, connecting roads were replacing the dependence on rivers for communication, there was a standing army, the economy was open to world markets, and the political life had become relatively democratic; yet, a large part of the population

was still excluded from the happiness promised by the egalitarian ethics of republican life and from the market economy that was allegedly raising Colombia from underdevelopment. In other words, the creation of the “modern” individual was still somewhat incomplete (and so was the “modern” Colombia). Cultural differences were central to that exclusion. Although *mestizaje* had replaced “whites” in colonial dominance over colored castes, opening formerly guarded gates of political and economic participation, native communities and Afro-descendants (who together made up more than 30% of the population) were true outcasts.

The State embarked upon an all-out promotion of a national history to create the still non-existent sense of an all-embracing community. Historical narrative was modernized: the first historical text, mandatory for the schools, was adopted in 1910; a National Archaeological Service was created in 1938; the Gold Museum was created in 1939; the National Museum was strengthened; and anthropology was established, professionally, in 1941. Archaeological discourse, discarding amateurism, rushed to help close the gap between modernity as rhetoric and as realization; the past came to rescue a clouded future.

Modernization of the historical domain meant the replacement of outdated ideas and practices (vernacular, unregulated, idiosyncratic) with those of rationalism, universalism, and objectivism. A center-periphery dichotomy arose: the center produced cognitive standards and the periphery strove to adopt them. Science was presented as an international endeavor; the vernacular was an anachronistic noise that had to be silenced. Interpreted from an archaeological perspective, the argument ran as follows: there is a center that produces scientific archaeological knowledge (capitalist democracies, especially the U.S. and England) and a periphery that consumes it. This argument resonates with the idea that colonies produce raw materials and metropolitan centers manufactured goods through the aggregation of value; applied to archaeology it amounts to saying that peripheral countries contribute the past (as a referent) and the metropolises enact its discursive conversion, which is then reproduced back at the periphery. What did this situation require? The same solution as technological backwardness: through the transfer of knowledge and the establishment of an adequate infrastructure (including scientists prepared in, or sent by, the center).

The Escuela Normal Superior, established in 1936, was the first academic institution geared to teach social disciplines. The institutionalization of archaeology in Colombia started with the State-sponsored work of French anthropologist Paul Rivet in 1941, the year he founded the National Ethnological Institute (devoted to research and academic training), endowed with an open, liberal environment that lent credence to the potential role of the social sciences in constructing a new social fabric. Rivet's endeavor catalyzed an ongoing and incipient (both in scope and support) archaeological program and established the scientific canon. Although the political agenda of the NEI was overtly pluralistic and democratic, Rivet guided the nascent institution toward a distant, aseptic relationship with social life. Ethnic alterity was objectified in museums and academic reports; its existence was thus secured but enclosed. A double domination was placed in motion: first, cultural difference was domesticated by making it appear as constitutive of national identity; and second, social memory was tamed, showing Colombians how alterity became part of the self by virtue of its incorporation into the collective project [Note 1].

The nationalistic discourse in vogue by the mid twentieth century was soon undermined by the very same discipline it had established to provide its rhetorical needs. Anthropologists built upon a previous political and artistic *indigenismo*, vindicating the indigenous legacy. Cultural relativism, handed down from Rivet to his pupils, showed that indigenous societies were highly developed, had complex systems of thought, were in a

sort of harmony with the environment, and had not needed western guidance to walk the road to civilization. Cultural relativism was a kind of anti-nationalism because it praised and endorsed cultural differences, thereby curtailing the ideal of homogeneity set forth by nationalism. These anthropological or ethnological ideas alienated anthropology from the State. Archaeology, however, was the exception: it kept strengthening nationalism by incorporating native societies into a common history.

Soon after Rivet inaugurated professional archaeology in Colombia the pan-Andean archaeological research project of the Institute of Andean Research at the American Museum of Natural History began research in Colombia as a marginal, northern appendix of the Central Andes [Note 2]; also, the Caribbean Archaeological Program of the Peabody Museum extended its interests into Colombia, joining the sixth expedition of the Institute of Andean Research Program. Although the expedition was led by two prestigious North American archaeologists, Wendell Bennett and James Ford, the results were meager in terms of transmission of methodology and the philosophy of knowledge because Bennet and Ford were transient visitors, little interested in bringing to Colombian archaeology the metropolitan discourse that eventually led to the adoption of an explicit scientific program.

The fact is that since the 1950s foreign archaeologists [Note 3] have not made an academic impact, nor established research standards that could serve as the basis for a truly scientific archaeology in Colombia (founded on rational, universal, and objective criteria). Archaeological work was done by Colombians trained in Colombia, initially by Rivet (and soon by his friend Gerardo Reichel-Domatoff, see Oyuela-Caycedo 1996) and later by his students, who became professors at the newly founded departments of anthropology (Los Andes 1963; Nacional 1966; Antioquia 1966; Cauca 1970).

Monumentalism continued to be the primary archaeological concern, while in the metropolises (and in other Latin American countries where the metropolitan standard was employed, such as in Mexico and Peru) more “mundane” research (settlement surveys and excavation at domestic sites) had already begun. Archaeologists limited themselves to produce aseptic (and boring) reports describing cultural materials. With the very notable exception of Reichel-Domatoff (e.g., 1972, 1981) they made no effort to establish webs of meaning linking contemporary indigenous communities with their findings and narratives; on the contrary, they avoided historical continuities (furthering a tendency started by amateur archaeology the previous century) and thus severed the syntagmatic integrity of the chains of historical significance. This rupture implied that indigenous peoples worthy of attention only belonged to the past, not to the present.

In 1971 the Foundation for National Archaeological Research (FIAN, its Spanish acronym) of the Banco de la República was created: it is the only institution devoted to sponsoring and disseminating archaeological research in Colombia through its publications series. While 1971 was the year of the greatest social unrest in the recent history of Colombia (with widespread student rebellions and the organization of peasant and indigenous movements), it also signaled a commitment by the State to a supposedly politically neutral discipline. That archaeology was the branch of anthropology to receive the support of the State was due to its tradition of non-involvement in politics. The collection of monographs published by FIAN is a good measure of what Colombian archaeologists have done. The core of the collection, numbering more than sixty volumes, is formed by descriptive, non-interpretative reports characterized by: (a) summary statements about similarities and differences; (b) non-explicit typological orderings; and (c) fairly limited and poorly supported explanations based on general extrapolations from current environmental conditions and historical documentation.

The orientation exemplified by the FIAN monographs remained little changed until recently. Colombian archaeology was oblivious to the academic events happening in the metropolis, where in less than a decade archaeology adopted an explicit scientific program, strove to make universal generalizations, and devoted increasing efforts to building solid inferences based on field research. The new scientific agenda, the model to be followed according to the center-periphery ideology, implied academic training in metropolitan centers and the standardization of disciplinary authority, such as publication in world journals (in English) and the internationalization of a writing genre (neutral and deprived of rhetorical tropes) as natural and correct for discursive contribution. But Colombian archaeology was “independent” and consequently, isolated. The investigation of the past in prescriptive scientific terms (the way to modernize a backward and vernacular archaeology, that is) was a task assigned to the few Colombians who pursued doctoral degrees abroad, especially in the United States, during the 1980s.

A historical analogy seems useful here: young members of the sixteenth century Cuna elite from Panama were trained in power centers of northwestern Colombia to introduce them into a social order that stressed inequality by restricting access to foreign goods and knowledge (Helms 1979). Political power in Cuna society rested on the manipulation of esoteric knowledge; power and knowledge were inextricably linked, and young members of the Cuna elite reproduced a political discourse learned in metropolitan centers. Similarly, Colombian archaeologists trained in scientific practices abroad went back to their homeland to teach the “real” knowledge about the past, to extirpate old fashioned practices, and to establish an inflexible canon. Until then Colombian archaeology, reputedly modern but poorly developed, was produced at the margins of the global discourse of late modernity; such is the only legitimate sense of its “independence”.

THE MULTIVOCAL GARDEN

In the logic of the anti-imperialist struggle that has bloomed world-wide since the 1960s (from European ecological movements to peasant rebellions in Latin America) and that challenges colonial geopolitics, the nature of the center-periphery dichotomy has been widely debated in world archaeology. The theoretical debate of contemporary archaeology has questioned dominant practices and hegemonic disciplinary traditions; this has helped to de-center the locus of discursive enunciation. Such a de-centering is not only a practical demand born out of the establishment of high-level academic training in the countries of the former Third World but also an active form of confronting subordination.

The argument about discursive reproduction (the periphery that adopts the discourse produced at the center) arises from a conception of modernity as a replacement of traditional practices; on the contrary, resistance would entail the production of “proper” knowledge, different from that coming out of the center. Such a conception of resistance fed the idea that the production and transmission of archaeological knowledge in peripheral countries could be made independently from the center. And since the 1970s the modernist teleology proclaimed from metropolitan centers has been resisted at the periphery.

One form resistance at the periphery, in Latin America, has been Marxist archaeology, which seeks to further Marxism’s promise of emancipation in countries rife with class oppression and endocolonialism. Marxist archaeology challenges the established scientific canon and positivist archaeology. One of its aims is the production of an “autochthonous” discourse.

However, although Marxist archaeology configured itself as a peripheral alternative—an open challenge to the metropolitan mandates of the First World—it was solidly built upon the center-periphery ideology; thus, it strengthened the dichotomy instead of dissolving it. It strengthened the world order instead of revealing how expert knowledge operates in specific conditions, in its multiple, complex, and varied positivities. Further, its resistance was not anti-modern because it appealed to science in order to fend off “speculative” thinking and to emancipate the oppressed (an obvious modernist goal). What it did challenge was the democratic-capitalist version of modernity.

At any rate, Marxist archaeology never took root in Colombia. The reasons are intriguing, especially as it was developed at a time (1960-1980) when there was enough political unrest in the country to encourage Marxist approaches in other social disciplines. Cultural anthropology, for instance, took a critical stance against the establishment and colonialist theories, and it made a political commitment to popular sectors of society, especially indigenous communities. The explanation for Colombian archaeology’s apparent political neutrality lies in its reputed (and proud) empiricism; thus, a theoretical tension never appeared in the praxis of Colombian archaeology for there was no space in which tension could emerge.

The institutional apparatus (FIAN, museums, academia) is still basically centered in the promotion of the universal, hard-core science espoused by late modernity. But the archaeology practiced at the grass-roots level is hybrid, situated and contested. The practical lesson that can be learned from current events in Colombia (and surely elsewhere) is that archaeological knowledge can be selectively (and ironically) adopted by a host of social movements (peasants, indigenous people, Afro-Colombians), not only for instrumental reasons but also for the construction of meaning. In this regard, indigenous symbolic appropriation of “archaeological remains” is marked by a conception that departs from that of most archaeologists; for the latter the archaeological record is evidence of past and thus vanished cultures, worth being subjected to scholarly inquiry, while for indigenous peoples archaeological sites are living places.

Colombia’s current constitution, enacted in 1991, is relevant in this regard. The Constitution made official the rhetoric of multiculturalism, which embraces matters related to the past. Article 72 of the Constitution proclaimed that the law “will rule the special rights ethnic groups living in archaeological-rich areas may have”. In the same vein, article 13 of Law 397 of 1997 states that “Ethnic groups living in archaeologically rich areas will retain rights they might exercise over archaeological patrimony that is part of their cultural identity”. As explained by one indigenous leader, “Although the 1991 Political Constitution declares that archaeological patrimony and other cultural goods that make up national identity belong to the nation, it admits the possibility that the law recognizes special rights that ethnic groups living in archaeological territories could have” (Guerra 2001:165).

However, a later provision, Decree 833 of 2002, states in Article 3 that archaeological patrimony belongs to the nation and that it is unalienable, without temporal term, and unrepossessable, and that “the rights of ethnic groups over archaeological patrimony that is part of their cultural identity and that is located in their territories, are not excepted”. Law 397 of 1997, which regulates constitutional mandates regarding cultural matters, states that “archaeological patrimony is composed of those movable or fixed assets that have their origin in vanished cultures”. This legal pronouncement is based on the all too familiar rupture of cultural and historical continuity (pre-Hispanic native cultures are gone, thus extant communities are not their descendants), perpetuating a practice that dates back to colonial times; no matter how significant pre-Hispanic cultural material can be to living

natives communities, they cannot legally claim descent from cultures that have “vanished”. In the practical arena, however, things are different.

Although the State was the only social actor fully conscious of the fact that history is an important battlefield where the great drama of identity is played out, there are now other actors interested; some of them have incorporated archaeology into their historical projects, others confront its monopoly. Archaeology is helping to subvert old colonial constructs that have deprived indigenous communities of concrete relationships with the material remains of their ancestors (the “archaeological record”). The Guambianos, one of the most numerous indigenous groups in southwestern highlands, feared the Pishaus, the reputed former inhabitants of their territory, because they were a colonially-produced incarnation of a terrifying alterity; yet, they have recently turned the Pishaus into their own revered ancestors and in the task they were decisively accompanied by anthropologists and archaeologists. Material remains uncovered by collaborative archaeological research were endowed with new meanings in the context of ethnic struggle for self-determination and cultural revival. From considering that “bones and burial goods are dangerous and contact with them can cause disease and even death ” and that “many say that those remains do not belong to Guambianos but to Pishaus,” they came to state that “all the pottery and all the traces found in our territory are our own and not of other people ... the Pishaus are our ancestors and not strange people” (Vasco 1992: 181, 188). In a manifesto published a year after these remarks were made, co-authored by one anthropologist and two respected elders, any doubts about the cultural affiliation of Pishaus were dispelled; the manifesto makes it clear that their image as alien enemies was a colonial imposition and that their symbolic and physical recovery as ancestors is a political move of the greatest importance.

Although the Gold Museum in Bogotá has hosted native ceremonies and has tried to incorporate native interpretations in its displays of pre-Columbian gold, its narrative is still highly hegemonic. Thus, regarding museums—one of the most important elements in the chain of historical narratives (due to their visibility and to the role they played in the educational apparatus)—not much has changed to significantly alter the relationship between indigenous peoples and archaeology. The “new” National Museum is still called national and a massive renovation (with United Nations funding) did not affect the way it represents history and intercultural relationships.

Until a few years ago indigenous peoples’ confrontation with archaeological hegemony was only marginal. But it is growing. The most active groups in this regard have been the inhabitants of the Sierra Nevada de Santa Marta, a mountain massif bordering the Caribbean. They claim territorial rights over the most spectacular pre-Hispanic remains in Colombia, the so-called “Lost City” (a vast terraced settlement with households, plazas, and stairways; see Chapter 22 in this volume), widely promoted by Colombian governments as an icon of national identity (comparable only to Macchu Picchu in Peru; see Chapter 54 in this volume).

The relationship between archaeologists and social movements has changed in the last two decades; special interest groups now have a place in configuring historical narratives. This new relationship is marked by struggle for self-determination (how local projects are developed and deployed, in the historical sense) and decision-making (how social memory becomes history and what contributes to it).

This negotiation—in which the old monopoly that archaeologists had over the production of history from cultural materials is challenged and successfully undermined—is one in which multiple voices are heard. The garden of historical delights is now full of flowers of many colors. Colombian *archaeologies* (as practiced and endowed with meaning

by academics, institutions, and social movements) may not be independent from global discourses (they never were) but have acquired important new characteristics (and a meaningful force) that have made them relevant for the many social contexts—where their results are surprisingly varied.

CONCLUSION

In the last twenty years Colombia has witnessed a growing popular involvement with politics, including an expanded awareness of the role (and importance) of symbolic representations. As part of this, archaeology has become an art of memory for ethnicity writ large. A bridge of collaboration and interdiscursive understanding between different groups and their associated histories is extending over political waters and constitutions of meaning. The locus of discursive enunciation about the past has widened.

What used to be an exclusive privilege of archaeologists has been de-centered: it is now in the agendas of ethnic minorities, in school curricula, in new legal frames, and in governmental decisions.

Center-periphery ideology rests over a questionable teleology because it implies a “natural” evolution from tradition to modernity that ignores the hybrid contexts in which global and vernacular discourses are co-produced. The dissolution of such an ideology requires the deconstruction of the idea, still widespread within the scientific establishment, that on one side there are rationality and truth and on the other are irrationality and darkness. Power is at stake as questions are asked about the conditions in which the construction of objects-based historical discourse occurs.

NOTES

1. It is interesting in this regard to consider that not much was said about Afro-Colombians because the abolishment of slavery in 1851 had eliminated, albeit only legally, their difference and had turned them simply into Colombians.
2. The Institute of Andean Research should not be confused with the Institute of Andean Studies at the University of California at Berkeley even though the latter's most famous archaeologist, John H. Rowe, conducted field-work in Popayán, Colombia in 1946-1948. This was done under the auspices of the Smithsonian Institution and before Rowe began teaching at Berkeley and founded the Institute of Andean Studies at Berkeley.
3. Although born in Austria and an emigré to Colombia in 1939 at the age of 27, Gerardo Reichel-Dolmatoff not only quickly became a Colombian citizen (in 1942), he became essentially Colombian and was so regarded until his death in 1996. In his obituary, Augusto Oyuela-Caycedo (1996: 55) describes Reichel-Dolmatoff as a brilliant scholar who trained a generation of Colombian archaeologists and anthropologists “who aspire to continue his high standards of research”.

REFERENCES

- Clifford, James, 1986, On ethnographic allegory. In *Writing Culture: The Poetics and Politics of Ethnography*, edited by James Clifford and George E. Marcus, pp. 98-121. University of California Press, Berkeley.
- Fabian, Johannes, 1983, *Time and the Other*. Columbia University Press, New York.
- García, Néstor, 1989, *Culturas Híbridas: Estrategias para Entrar y Salir de la Modernidad*. Grijalbo, México.
- Guerra, Weidler, 2001, Del exotismo a la autonomía. Los pueblos indígenas y los cambios en los conceptos de identidad, patrimonio y museo. In *La Arqueología, la Etnografía, la Historia y el Arte en el Museo*, edited by Fernando López, pp. 163-168. Museo Nacional, Bogotá.
- Helms, Mary W., 1979, *Ancient Panama: Chiefs in Search of Power*. University of Texas Press, Austin.
- Isaacs, Jorge, 1967, *Las Tribus Indígenas del Magdalena*. Biblioteca Schering, Bogotá. [1884]

- Jimeno, Myriam, 1984, Consolidación del estado y antropología en Colombia. In *Un Siglo de Investigación Social. Antropología en Colombia*, edited by Jaime Arocha and Nina de Friedemann, pp. 159-195. Etno, Bogotá.
- Martín, Jesús, 2003, *De los Medios a las Mediaciones*. Convenio Andrés Bello, Bogotá.
- Oyuela-Caycedo, Augusto, 1996, Gerardo Reichel-Dolmatoff. *American Antiquity* 61 (1): 52-56.
- Pineda, Roberto, 1984, La reivindicación del indio en el pensamiento social colombiano (1850-1950). In *Un Siglo de Investigación Social: Antropología en Colombia*, edited by Jaime Arocha and Nina de Friedemann, pp. 199-251. Etno, Bogotá.
- Reichel-Dolmatoff, Gerardo, 1972, The feline motif in prehistoric San Agustín sculpture. In *The Cult of the Feline*, edited by Elizabeth P. Benson, pp. 51-68. Dumbarton Oaks Research Library and Collection, Washington, D.C.
- , 1981, Things of beauty replete with meaning: metals and crystals in Colombian Indian cosmology. In *Sweat of the Sun, Tears of the Moon: Gold and Emerald Treasures of Colombia*, edited by Daniel H. Seligman, pp. 17-33. Natural History Museum, Los Angeles.
- Triana, Miguel, 1972, *La Civilización Chibcha*. Carvajal, Cali. [1922]
- Uribe, Rafael, 1907, *Reducción de Salvajes*. Imprenta de la Luz, Bogotá.
- Uricoechea, Ezequiel, 1984, *Memoria sobre las Antigüedades Neo-Granadinas*. Banco Popular, Bogotá. [1854]
- Vasco, Luis Guillermo, 1992, Arqueología e identidad: el caso Guambiano. In *Arqueología en América Latina Hoy*, edited by Gustavo Politis, pp. 176-191. Fondo de Promoción de la Cultura, Bogotá.

From the Erasure to the Rewriting of Indigenous Pasts: The Troubled Life of Archaeology in Uruguay

GUSTAVO VERDESIO

INTRODUCTION

In order to understand the role played by archaeology in Uruguay in the creation of the narratives of nationhood, I must provide some background about both the indigenous people who populated that land in colonial and pre-contact times and the way in which they were and are perceived by mainstream Criollo society. This will help us understand the ideological framework in which archaeology developed as a discipline and how this influenced the way in which it dealt with the indigenous past.

In the territory of Uruguay, most of the groups encountered by European invaders at the time of contact were either nomadic or very mobile, seasonally occupying different sites. They did not practice agriculture at a significant scale and did not depend on it for their subsistence. Moreover, the Amerindians who populated the land did not live in cities, did not build structures of stone, and did not have a penchant for monumental architecture. Consequently, there are no magnificent ruins constructed by indigenous peoples in the remote past.

The absence of impressive stone ruins is experienced both by Uruguayans in particular and by Western society in general, as an inadequacy. It seems that for an indigenous society to be respected by Europeans it must have built palaces or temples (or other architectural structures) in durable materials such as stone. If there are no such structures, the Amerindians who failed to construct them are regarded as backwards or “primitive”. This is why in Uruguay, unlike some other Latin American countries, there are no indigenous sites that can invite its current, Occidentalized inhabitants, to perceive themselves as members of one nation.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell. Springer, New York, 2008

However, the Uruguayan territory *is* filled by monumental structures of significant size. Unfortunately, they have not been considered indicative of civilization because they are constructed of earth and clay. These mounds, known as *cerritos* (see Chapter 14 in this volume), have been consistently minimized and ignored, throughout history.

This, together with the low esteem that Uruguay's ethnic groups received at the time of contact (and still receive), results in an overwhelming disregard for local indigenous societies of the past. The Charrúa, the Guenoa, the Guarani, and others, along with unnamed pre-contact societies, all share the stigma of being perceived as primitive, bothersome, backwards, lacking in ambition and industriousness, and incapable of producing impressive and enduring monuments.

Disparaging images of the Amerindians who populated these lands were systematically produced by different discourses (some of which were disciplinary) that recycled the tropes and images produced by the first explorers and colonizers of the Americas. The discourses were part of their strategy to build a nation conceived as a European society, excluding the participation of any ethnic groups that were not European or that did not conform or adapt to Western social organization.

One of the discourses that contributed to the negative image of Amerindians in Uruguay was literature. In that discursive formation, indigenous peoples were represented as either a nuisance or as an anachronistic obstruction from the past. Typical of this attitude is the acclaimed late Romantic poem *Tabaré*, by Juan Zorrilla de San Martín, known as the poet of the fatherland ("el poeta de la patria"). In the poem, the Charrúa are presented as an extinct group whose fate was to disappear because they were incapable of understanding or adapting to the Western, capitalist way of life.

The educational system also played a very important role in creating Uruguayan national narratives throughout the years. For roughly a century it promoted a model for the nation that was conceived by the State as a Europeanized country where Amerindians and the non-Western past were ignored. Consequently, it was foreign to the social and cultural realities of the country (Consens and Bello 1998).

Over the last twenty years, concerned individuals began questioning this long-popular model. Some (myself included) believe this critique has to do with an identity crisis provoked by the dictatorship of 1973 to 1984 (Porzecanski 1992; Perelli 1986; Beisso and Castagnola 1987; Consens and Bello 1998). During those years, the way in which society was organized and the ways in which Uruguayan citizens viewed themselves changed dramatically: a country that imagined itself as a democratic anomaly in a politically turbulent continent saw its own institutional stability shattered by a military coup that lasted more than a decade. There are, of course, other elements that explain the declining appeal of the master narratives of Uruguayan nationhood. One of them is the way in which Uruguayan citizens have reacted to a proliferation of others brought by neoliberal globalization. The traditional isolation of the country has ended and its citizens now have to deal with a cultural diversity that was unknown to them until the immersion of the country in the global era.

I will return to these issues later in this chapter, but let us look first at the role played by some expert knowledge in the production of negative images of the region's Amerindians. Historiography and archaeology were no exception to the negative way of portraying indigenous peoples. On the contrary, these two disciplines are responsible, in great part, for the most popular representations of the Amerindians of Uruguay. This is true, at least, about knowledge produced until very recently—say, until 1986, the year when a series of excavations of *cerritos* mounds in eastern Uruguay began.

According to archaeologist Leonel Cabrera, investigation conducted in the late nineteenth century was rather naïve (Cabrera 1988). It was mostly directed by aficionados and amateurs without the professional background necessary to perform rigorous research. For example, the aficionados paid little attention to the stratigraphy of the sites they were excavating and their tendency was to ascribe whatever objects they found to the ethnic groups that populated the territory at the time of contact. According to Cabrera, the attitude of those practitioners was closer to that of the antiquarian (or the collector) than that of the archaeological scholar (Cabrera 1988). They limited themselves to collecting objects of indigenous material culture, which they placed in museums or private collections with little information about the context in which they were found, or chronology that could provide a frame for them. This approach did not change dramatically until 1976, when an undergraduate degree program in anthropology, with specialization in archaeology, was created. Only subsequently did archaeology start to develop systematic methods consistent with international academic standards.

NATIONALISM AND THE INTERPRETATION OF THE PRECOLUMBIAN PAST

Before 1976, knowledge of Uruguay's remote past was limited to the research by untrained, non-professionals. Consens and Bello correctly point out that most of the knowledge produced about Uruguay's remote past was done outside the university (Consens and Bello 1998).

One of those archaeologists (probably the first one in the history of Uruguay), Jose H. Figueira, described the Charrúa in 1892: "Nada se sabe acerca de su historia en tiempos anteriores a la conquista" [nothing is known about their history before the conquest] (Figueira 1892). This means that his only sources about the Charrúa, their culture and society, come from a rather unreliable source: texts penned by the chroniclers and explorers of colonial times. Apparently, it never occurred to him or his fellow aficionados to conduct an excavation in order to find out more about the Charrúa of pre-Columbian times. His account of the Amerindians repeats all the knowledge produced, and passed from generation to generation, by the colonial authors. We learn, for instance, that the Charrúa had no law, no religion, and only a very vague notion of the supernatural (Figueira 1892). Their energy was dedicated entirely to subsistence (in opposition to what Figueira calls civilization)—which in his opinion explains why their way of life remained almost intact during the centuries of the colonial period (Figueira 1892).

One statement showing how completely Figueira was immersed in the cognitive universe postulated by narratives of the nation-state, is the following: "fue menester destruirlos" [it was necessary to destroy them] (Figueira 1892:33). Apparently the writer agreed that extermination campaigns were the only way to rid the nation of pesky natives who resisted modern, capitalist ways of life. In this respect his position was not very different from that of Zorrilla de San Martín.

Figueira has nothing better to say about the other indigenous peoples who populated the territory. He describes them as savages incapable of adapting to "civilized" life—indicating, in his opinion, that Amerindians were inferior vis-à-vis Western culture; an inferiority that is, again according to him, typical of the most backward races whose mental development never exceeded that of children. The Charrúa and the other indigenous groups from the territory were examples, he seems to say, of arrested development.

These views on the local Amerindians resonate with the nation imagined by the elites: an imaginary with no room for groups unable, or unwilling to accept the rules of the game imposed by Western civilization. Figueira's support of the master national narrative is a consequence not only of his ethnic and social affiliation (the Criollo elite) but also of his archaeological experience, for archaeology, as Margarita Díaz-Andreu and Timothy Champion (1996) point out, as an incipient discipline was involved in constructing or strengthening the narratives of the nation. According to these authors, nationalism heavily influenced not only the results of archaeological investigations but also the structure and ethos of the discipline. Indeed, the emergence of nationalism "stimulated the very creation of archaeology as a science and informed not only the organization of archaeological knowledge but also its very infrastructure. Without the existence of nationalism, archaeology or the study of the past might never have advanced beyond the status of a hobby or a pastime" (Díaz Andreu and Champion 1996). This very close relationship between nations and archaeology is based on a historical fact: the existence of the nation "implies the existence of a past which, for their own good and that of the individuals who belong to them, should be known and propagated" (Díaz-Andreu and Champion 1996: 3). In this way, the institutions and disciplines (the knowledge experts) endeavored to justify the territory in which the nation developed (Díaz-Andreu and Champion 1996).

Archaeology and the nation, then, go hand in hand. This is especially evident when the nation formulates laws to regulate national heritage and a museum system begins to emerge (Díaz-Andreu and Champion 1996). States played (and still play) a very important role in determining what past and what objects will be preserved. As Ian Hodder (1999), affirms, to a considerable degree, museums regulate the survival of the past.

In Uruguay, however, unlike the European countries that dominated the world and had an interest in appropriating the past of both their nation and those they colonized, archaeology did not have much support from the State. Yet, in spite of this unfavorable situation, archaeology started to develop in the 1880s. Of course, as seen in Figueira's work, its practitioners were squarely on the side of the Criollo elite so the discipline's research and findings reinforced national narratives.

Unlike some other Latin American countries, archaeology in Uruguay did not have an active, positive role, in the creation of narratives of the nation. It did not provide the public with narratives about sites that focused citizens' emotions, making them feel part of a community—as in Mexico, Peru, and in other countries where indigenous ruins play an important role in constructing master narratives of nationality. In Uruguay, the early role played by archaeology was a negative one: instead of trying to re-appropriate the indigenous past, it negated it as inferior and as an inadequate foundation for constructing the nation. Unlike the archaeological endeavors in other Latin American countries, which built an image of the past based on the exaltation of the human qualities and virtues of the Amerindians of the past, Uruguayan images presented its indigenous inhabitants of remote times as primitive and savage.

Archaeology in Uruguay has not sustained national identity, as in countries like Ecuador. That is to say, Uruguayan archaeologists are not members of what Hugo Benavides (Chapter 53 in this volume) calls the national church. They have not, traditionally, produced positive, constituent (or constituting) narratives but instead a void, or blank page that has allowed the Criollo elites to write the history and narratives of the nation as another chapter in the development of Western civilization.

THE START OF A NEW ERA

The state of affairs in Uruguayan archaeology changed in 1926, when a group of influential intellectuals and politicians founded the *Sociedad Amigos de la Arqueología*, which started the publication of archaeological research in 1927. Although still affected by the ills of amateurism, it provoked a dramatic advance in favor of more systematic and academic standards in the country's archaeology. Its members were well aware of both the need to promote scientific and academic advancement in the discipline, and of an urgent necessity for a state-sponsored program of investigation and conservation of the archaeological record (*Sociedad Amigos de la Arqueología* 1927).

In spite of the efforts of these intellectuals, development of the discipline was slow. In the following years, it continued to be mostly the work of aficionados without institutional affiliation (although some of them were very enthusiastic and serious in their endeavors, such as Antonio Taddei). However, in the time between the foundation of the *Sociedad* (1926) and the inauguration of an anthropology degree program at the *Universidad de la República* (1976) important findings did take place. In 1955, Antonio Taddei found an archaeological site in far northern Uruguay that produced evidence of a surprisingly ancient culture. Some scholars estimate the antiquity at ten or eleven thousand years BP (Barrios Pintos 1991). It is worth noting that recent archaeological investigations have not focused on this site so dates proposed in the past are in need of reconsideration—not necessarily to disprove the antiquity, but to study the site with more sophisticated, up to date disciplinary approaches.

Another important moment in the history of Uruguayan archaeology is the 1976–1983 international salvage archaeology mission sent by UNESCO to the Salto Grande site, where the construction of a dam threatened to destroy—and eventually did—the surrounding area with its cultural resources. Unfortunately, the salvage expedition excavated only 15 of the 127 sites discovered in survey and as I write, the results have been published only partially.

The year 1976 is also important for the foundation of the degree in anthropology and archaeology in the *Facultad de Humanidades y Ciencias* at the *Universidad de la República*, where all the archaeologists working in the country today have been trained. Although a high percentage of the professors who started the program were amateurs, the organization of the licenciatura [see Editors' Note] was directed by Argentinean anthropologist Dr. Antonio Austral, giving substance to the curriculum and the research agenda of the new program.

A NEW UNDERSTANDING OF URUGUAYAN PREHISTORY

In 1986, a group of graduates of the program began a groundbreaking (literally and pun intended) series of investigations at the *cerritos de indios* (Indian mounds) of southeast Uruguay. These excavations are important because they changed the way the mound builders were imagined, not only by the general public but also by archaeologists who had not paid much attention to them. The most popular views of Uruguay's pre-Columbian indigenous peoples had represented them as a few hunter-gatherers struggling against a hostile environment to barely survive. Although there are hundreds (and before destruction by the expansion of modern urban enclaves, perhaps thousands) of mounds in Uruguay, individually,

none is comparable to the largest in North America (e.g., Cahokia and Moundville) –let alone the sites of the Inca, Mexico, and Maya). Therefore, they were insufficiently studied, and because of this they were inadequately understood.

But today, after the investigations that began in 1986, the image of ancient Uruguay's mound building societies presented by professional archaeologists is radically different. The pre-Columbian people are no longer described as small bands of hunter-gatherers struggling very hard for survival, but as a series of complex societies thriving for centuries thanks to efficient adaptations to the diverse environments they exploited. To begin with, the research consistently shows that the resources available to them at that time were more abundant than formerly thought. The quantity of faunal remains excavated from mounds suggests an abundance of big mammals, especially a species of deer that was bigger than those of the present (López Mazz and Bracco 1992). Palm nuts, another important resource documented by burned seeds, were very abundant in southeast Uruguay (even today, after significant deforestation, the trees cover 200,000 ha) (López Mazz and Bracco 1992). These high-yield resources and the great number of mounds imply a social and economic scenario more like the following: long-term, territorial groups developed economic strategies so efficient that they were able to invest a significant amount of time and labor in earthen monuments that gave no immediate return in subsistence (López Mazz and Bracco 1992).

Perhaps the most important feature of the new model is recognition of the degree to which these hunter-gatherers employed a sophisticated seasonal cycle of resources in complementary environments (López Mazz and Bracco 1992). The evidence studied so far suggests that they occupied the area where the mounds were constructed in the Spring-Summer (López Mazz 1995a). However, foraging was not limited to mounds locations, but included surrounding areas for at least 20 km. One of those distant locations (30 km from the mounds) was the coast, where the mound builders caught sea lions (another important source of protein and fat), as shown by the sea lion tusks found in the mounds (López Mazz and Bracco 1992). These discoveries suggest to the archaeologists in charge that the mound builders were reasonably sedentary—something that was completely alien to the picture presented before the 1986 investigations (López Mazz and Bracco 1989). Both the abundant resources available in the area and the demands of the mounds in construction time, organization and anticipated use imply sedentism (López Mazz and Bracco 1992).

Human and other remains found in several mounds suggest they had a funeral function (Femenías et al. 1990). Ash from burning that is not consistent with domestic food preparation implies ritual or ceremonial activities (López Mazz 1992). The funerary remains represent differential treatment for a few individuals, suggesting social complexity, with rather sophisticated organization of communal labor—the labor needed to construct the earthen structures (López Mazz and Bracco 1989). For this reason, José López Mazz proposes a model presenting the mound builders as a society beginning to show non-egalitarian organization (López Mazz 1995b) [Note 1].

Anthropologist Daniel Vidart, an aficionado who participated in founding the first anthropology degree program in Uruguay, has tried to play down the importance of the new findings. He continues to subscribe to the old model offered by the amateurs. In his opinion, the population of the mound builders was scant and never sedentary. Because he bases his opinions about the new investigations on newspaper articles (he does not seem to be conversant with academic publications on the subject), he accuses his archaeological colleagues of assertions they have not made: for example, the existence of slaves in mound builder society, and an estimated population of 300,000 (Vidart 1996). He employs satire to criticize, claiming that the new findings are simply more of the same, except for a few

pieces of evidence not previously found by excavators prior to 1986: the skeleton of a dog and a pumpkin seed. Of course, the seed is not, in his opinion, evidence for mound builder agriculture (Vidart 1996).

Significantly, archaeologists in charge of the excavations that took place over the last twenty years never claimed that one pumpkin seed was strong evidence of a subsistence pattern including agriculture. They simply left open the possibility that new evidence might more convincingly imply cultivation. And indeed, evidence has begun to materialize, allowing José Iriarte (a graduate of the Universidad de la República program and currently a graduate student in archaeology at the University of Kentucky) and colleagues to argue that in southeast Uruguay horticulture may have been practiced by very remote times (3600 BP) (Iriarte et al. 2001). In the article they propose a new model, based on the presence of starch grains characteristic of maize, beans, and possibly tubers (found using techniques developed by Irene Holst and Dolores Piperno at the Smithsonian Tropical Research Institute). The following scenario is proposed: a society with a mixed economy that combined hunting, fishing, and gathering with small-scale horticulture of maize, beans, squash and possibly domesticated tuber (Iriarte et al 2001).

In a follow-up article in *Nature* in 2004 Iriarte and colleagues presented evidence of the earliest cultivars found in southern South America, at the Los Ajos mound complex, based on new paleoethnobotanical techniques (intensive flotation procedures). Although seeds, nuts, and roots were not found, phytoliths and starch grains diagnostic of maize cobs were abundant. Also, large spherical scalloped phytoliths diagnostic of rinds from domesticated *Cucurbita* (squash) were present, along with palm phytoliths. Some starch grains from maize kernels were documented in other mound complexes such as Isla Larga and Los Indios. At Isla Larga, starch grains from beans and rhizomes were also discovered. All this suggests some kind of horticulture by very early times—radiocarbon dated at 4190 BP—which makes this the earliest case of a mixed economy that included the cultivation of maize and pumpkin in southeastern South America (Iriarte et al. 2004).

THE CURRENT SITUATION AND FUTURE PROSPECTS

As can be seen, archaeology in Uruguay has changed a lot in the last few decades. It went from the work of pioneering aficionados of the late nineteenth century and the enthusiastic efforts of individuals like Antonio Taddei and others in the early twentieth century, to a growing, academically trained group of archaeologists who now publish in major international journals such as *Nature* and *Latin American Antiquity*. Today, this group of archaeologists is making important contributions to the systematic knowledge of the distant past. However, there are still many things missing, or that need to be improved, in the practice of the discipline.

The most obvious inadequacy is the lack of funding for current and future projects. It is very difficult to produce knowledge in the conditions in which Uruguayan archaeologists are working, which are worse than in most other Latin American countries. The consequence of the grim economic situation is that there is no money for even basic things, such as radiocarbon dating—frequently, carbon samples sit for months or years on the desk of the archaeologists who recovered them until the small (for international standards) sums of money needed materialize in the form of grants or, not infrequently, personal efforts of the scholars, who pay for the analyses out of their pockets. Professional archaeology cannot be conducted in this way.

Another problem with the practice of archaeology in Uruguay, attributable to the practitioners themselves, is the need for a metadiscourse within the discipline. This is because there is very little explicit theoretical reflection in and on the work. Archaeologists seem more preoccupied with methodological aspects and technologies issues than the theoretical foundations of what they do.

Today there is an unprecedented wealth of approaches to archaeology in Uruguay. The leading practitioners have embraced different aspects of the discipline and different methods as well. Some (like Leonel Cabrera) have focused on ethnohistory and ethnoarchaeology. Others (like Roberto Bracco) prefer to study site formation, examining the structure of mounds as well as process of construction, or developing their own radiocarbon dating laboratory. Some (like José Iriarte) have chosen to develop paleoethnobotany, while others (like José López Mazz) prefer the symbolic universe of the mound complexes, including issues of ideology, domination, power, stratification in mound builder societies, and territoriality (the mounds as territorial markers). Of course, most researchers share an understandable urgency to excavate unexplored sites, which leaves them little time for contemplating the theory underlying their work.

As a consequence of the lack of self-reflection, most Uruguayan archaeologists are immersed in a processualist framework that remains unquestioned—a sophisticated, up-to-date, processualist agenda, but a rather uncritical one nonetheless. The only archaeologist who seems to be more interested in the post-processualist paradigm is José López Mazz, but his own work does not make explicit metatheoretical claims or justify his theoretical preferences. His situation is similar, I believe, to other archaeologists who have studied mounds (for instance, in the U.S., such as Timothy Pauketat), who seem to have been caught in the middle of a paradigm shift: their training as graduate students was processual but they realize that to understand material remains of the past a more post-processual perspective is needed (Pauketat 2000, 2004). In the cases of López Mazz and Pauketat, there also seems to be a strong influence of Marxist thought that inclines them to focus on issues of power, domination, and ideology. It is clear that for López Mazz, the influence of the Latin American archaeological tradition known as “*Arqueología Social*” (Lumbreras 1974; Benavides 2001), (which attempts to incorporate historical materialism into the discipline, is as strong as (or stronger than) the post-processualist mode of intellectual production.

The lack of theoretical production is probably the consequence of several factors. Scarce economic resources exacerbate the situation, providing few opportunities to attend international gatherings where theoretical issues are discussed. The deplorable economic situation prevents the Department of Archaeology from bringing speakers from abroad, contributing further to the isolation of Uruguayan pre-historians. Furthermore, economic deprivation is apparent in the library of the Facultad de Humanidades: it is almost impossible to keep abreast of the field without access to current books and journals.

This isolation, together with the absence of post-graduate studies (only a licenciatura degree is offered at the national university), prompts some students to pursue doctoral programs abroad—especially in Europe and the U.S. Although this is not regrettable per se (exposure to other ways of learning and thinking is always beneficial), it has an alarming aspect: it looks very much like a case of brain drain. This is because the probability that newly minted Ph.D.’s will return to their homeland is slim; the most common scenario is that they remain in the academic communities where they received their degrees.

Another problem is that summary and popular syntheses of archaeological research (knowledge gained, the new models proposed for mound builder society) are rare, which then is not conducive to promoting interest in the past among the public, which in turn

reverberates as a lack of public support for archaeology. Moreover, the new chronology that is emerging from the most recent research projects is not available. In fact, Uruguayan archaeologists are publishing their research articles in journals (mostly Latin American) that are very difficult to find even for other academics. As a consequence, educators who should be consuming the new knowledge produced about the indigenous past have access only to the works published by amateurs and non-specialists.

Some responsibility for the current state of affairs must be attributed to the archaeologists themselves. Their writings tend to be filled with jargon, and are often too technical for lay readers, who find the texts too difficult to understand. Uruguayan archaeologists are not recognizing their obligations to develop communication skills, and write for the general public. As a consequence, non-specialists fill the gap, writing the sources most read and quoted by primary and secondary school educators. Sadly, the public is being fed ridiculous, unfounded assertions about the indigenous past, but there are no other sources and publications they can consult for a different picture.

The seriousness of the situation is apparent when we examine current social and political processes. One of the effects of criticizing the old master narratives of the Uruguayan nation is that certain events of the past that were taboo have reappeared with a vengeance. For example, the Charrua, the indigenous group that suffered a year long campaign of extermination, is the only indigenous group Uruguayans talk about when discussing the indigenous past. This is curious considering the importance of another indigenous people, the Guarani. Indeed, outsiders perceive the Guarani as instrumental in Uruguayan history, but the Uruguayans do not, in spite of the fact that Guarani Indians expelled the Portuguese from the territory three times. They founded Montevideo, built its houses and other buildings, and remained in the territory making a significant cultural contribution to the development of Uruguayan society. But in popular discourse the Charrua have become the only group representing Amerindians in Uruguay. The Charrua stand for “all Amerindians” in the Uruguayan imaginary, notwithstanding the fact that the Charrua themselves do not play a stellar role in the narratives of the nation—but they appear there: they are indigenous people *par excellence*. Because much has been written lately about the way this happened, I will not focus on it here. I limit myself to pointing out that events that led to the extermination were not, until the late 1980s, discussed by Uruguayans—nobody likes to remember or discuss a genocide that is the foundation of the current state of affairs in their country.

Renewed interest in Uruguay’s indigenous past has not, however, had archaeology as a protagonist. Unfortunately, scholars of prehistory are failing to respond to avid demands for information about the Amerindians who inhabited the territory before and during European contact. The space left by their failure to provide popular scholarship is filled by, non-specialist, journalistic writers. They publish in mainstream presses and enjoy wide distribution, attention from the media, and are well received by teachers of primary and secondary schools. I would include among these authors one who is a hybrid case: Daniel Vidart, who enjoys great prestige (due to his long years as an anthropology professor at the state university) despite both his lack of professional training and a lack of rigor in most of his writings. His work is probably more dangerous than that of, say, Danilo Antón, whose outrageous affirmations about the Charrua and other ethnic groups sometimes exceed the credibility of even his most enthusiastic readers (for a more detailed analysis of these non-specialists see Verdesio 2001-2002).

Perhaps the most visible actors participating in the recovery of Amerindian pasts in Uruguay are two organizations identifying themselves as descendants of indigenous people:

ADENCH (Association of Descendants of the Charrua Nation) and INDIA (National Integrator of Descendants of American Indians). These two groups are, however, very different in their goals, organization, and *modus operandi*.

ADENCH played the key role in an event that illustrates the state of affairs of indigenous issues and the place of archaeology in Uruguay today. The occasion was the repatriation of the human remains of an Uruguayan Amerindian named Vaimaca Perú, whose skeleton had been held by the Musée de l'Homme, in Paris, for almost 170 years. This first case of repatriation of indigenous remains to Uruguay was a long process begun by the members of ADENCH, who later allied with the Uruguayan State. After ten years of negotiations the ministries of Education and Culture and Foreign Affairs reached agreement with the French government and the remains of Vaimaca Perú arrived in Uruguay on July 17, 2002, to be buried in the Panteón Nacional, where the remains of many national heroes and important personalities rest. But arrival for burial became fraught with conflict due to several factors, one of which (and not the least important one) was that Bernabé Rivera, the man who personally conducted the campaign of extermination against the Charrua—the campaign during which cacique Vaimaca Perú was captured—is buried in the very same Panteón Nacional.

But of key relevance for this chapter is the fact that during the entire process of repatriation, archaeologists and archaeology as a discipline were mere spectators: they played no role in the process preceding the actual repatriation, or in the funeral ceremony. Archaeologists were never consulted and they remained outside the discussion that developed in the media, where the protagonists were the associations of descendants (especially ADENCH), the executive branch of the government, and some legislators. Only very late in the game were the services of a biological anthropologist (Mónica Sans, who had an excellent relationship with one association of descendants, INDIA) required to conduct measurements of the skeleton and to extract DNA samples to determine the ethnicity of the cacique.

The conspicuous absence of Uruguayan archaeologists in this whole process is lamentable. They made no contribution to the discussion of DNA sampling or the ethical and professional dimensions involved in treating human remains. The government ignored archaeologists' protests and favored, instead, the participation of a single scientist (the biological anthropologist, Mónica Sans), perhaps to save face or because its officials were seduced by the DNA discourse.

Whatever the case, this episode in recent Uruguayan history demonstrates the disregard for archaeology among politicians, lawmakers, and the general public. Although it would be unfair to blame the victims (the archaeologists themselves), it is true that professional archaeologists have done too little to reach the public, provide new knowledge and thus make a case for the relevance (and funding) of prehistory. To this day, they have not responded to the inaccuracies and falsehoods published by non-specialists and by Vidart (who published an influential book on the mound builders in 1996). In this way, and despite good intentions, Uruguayan archaeologists are inadvertently contributing to the official narratives of the nation.

It is not enough to refute these narratives in academic papers published in obscure journals. Archaeologists must leave their laboratories and classrooms, to reach out to the public and grab the attention of policy-makers. Only in this way will the stories that Uruguayans have been told for decades be rewritten, reestablishing dignity and historical accuracy to the image of the country's Amerindians. That is the only way the new stories painstakingly documented by the new generations of Uruguayan archaeologists will change the way the general public views the indigenous past.

EDITORS' NOTE

There is no equivalent of the licenciatura in U.S. universities. In Latin America the licenciatura in archaeology is common. It is typically an extra professional certification beyond the academic social science or humanities level of the B.A. such that students graduating with a licenciatura in archaeology are considered qualified to undertake their own archaeology projects. The B.A. and M.A. in both the U.S. and Latin American universities are academic degrees. In Latin America, the licenciatura has more prestige and professional recognition than a B.A. or M.A.

NOTES

1. In a previous report by PRALM, archaeologists advanced the opposite hypothesis (an egalitarian society), based on the associated mortuary material (polished stones, bones, tusks and shell collars, among other objects) in the interments under study (Femenías et al. 1990: 352). According to Tainter, treatment of the dead in differential manners is an indicator of hierarchy and social stratification (1978: 107). Furthermore, ritual, understood as a communication system, reveals information about the status of the dead (Tainter 1978: 113).

REFERENCES

- Antón, Danilo, 1995, *Piriguazú. El Gran Hogar de los Pueblos del Sur*. Rosebud, Montevideo.
- , 1997 [1994], *Uruguaypirí*. Rosebud, Montevideo.
- , 1998, *El Pueblo Jaguar. Lucha y Supervivencia de los Charrúas a través del Tiempo*. Piriguazú, Montevideo.
- Barrios Pintos, Aníbal, 1991, *Los Aborígenes del Uruguay*. Linardi y Risso, Montevideo.
- Beisso, Rosario and José Luis Castagnola, 1987, Identidades sociales y cultura política en el Uruguay. Discusión de una hipótesis. *Cuadernos del CLAEH* 12 (44): 9-18. Centro Latinoamericano de Economía Humana.
- Benavides, O. Hugo, 2001, Returning to the source: social archaeology as Latin American philosophy. *Latin American Antiquity* 12 (4): 355-370.
- Bracco, Diego, 1998, *Guenoas*. Ministerio de Educación y Cultura, Montevideo.
- Cabrera, Leonel, 1988, *Panorama Retrospectivo y Situación Actual de la Arqueología Uruguaya*. Universidad de la República, Montevideo.
- Castro-Gómez, Santiago, 1998, Latinoamericanismo, modernidad, globalización. Prolegómenos a una crítica poscolonial de la razón. In *Teorías Sin Disciplina. Latinoamericanismo, Poscolonialidad y Globalización en Debate*, edited by Santiago Castro-Gómez and Eduardo Mendieta, pp. 169- 205. Editorial Porrúa, Universidad de San Francisco, México.
- Consens, Mario and Ana Bello, 1998, El rol de la educación pública en la invención del estado moderno uruguayo. <http://www.naya.org.ar/congreso/ponencia1-10.htm>
- Díaz-Andreu, Margarita and Timothy Champion, 1996, Nationalism and archaeology in Europe: an introduction. In *Nationalism and Archaeology in Europe*, edited by Margarita Díaz-Andreu and Timothy Champion, pp. 1-23. UCL Press, London.
- Femenías, Jorge, José M. López, Roberto Bracco, Leonel Cabrera, Carmen Curbelo, Nelsys Fusco, Elianne Martínez, 1990, Tipos de enterramiento en estructuras monticulares ("cerritos") en la región de la cuenca de la Laguna Merín (R. O. U.). *Revista do CEPA* 17 (20): 345- 356. Centro de Ensino e Pesquisas, Universidade de Santa Cruz do Sul.
- Figueira, José H., 1892, *Los Primitivos Habitantes del Uruguay*. Dornaleche y Reyes, Montevideo.
- INDIA, 2002, El retorno de Vaimaca (Pirú, Perú o Perico). <http://www.members.tripod.com/indiauy/vaimaca/elretorno.htm>
- , 2002, Bienvenido Vaimaca (Pirú, Perú o Perico), ya estás en tu tierra. <http://www.members.tripod.com/indiauy/vaimaca/bienvenido.htm>
- Iriarte, José, Irene Holst, José López Mazz, and Leonel Cabrera, 2001, Subtropical wetland adaptations in Uruguay during the Mid-Holocene: an archaeobotanical perspective. In *Enduring Records. The Environmental and Cultural Heritage of Wetlands*, edited by Barbara A. Purdy, pp 61-70. Oxbow Books, Oxford.

- _____, Irene Holst, Oscar Marozzi, Claudia Llistopad, Eduardo Alonso, Andrés Rinderknecht, and Juan Montaña, 2004, Evidence for cultivar adoption and emerging complexity during the Mid-Holocene in the La Plata Basin. *Nature* 432 (December 2): 614-617.
- López Mazz, José M., 1992. Aproximación a la génesis y desarrollo de los cerritos de la zona de San Miguel (Departamento de Rocha). *Ediciones del Quinto Centenario. Vol. I*, edited by Renzo Pi Hugarte et al., pp. 76- 96. Universidad de la República, Montevideo.
- _____, 1995a, El fósil que no guía y la formación de los sitios costeros. *Arqueología en el Uruguay. VIII Congreso Nacional de Arqueología Uruguaya*, edited by Mario Consens, José María López Mazz and María del Carmen Curbelo, pp. 92- 105. Montevideo.
- _____, 1995b, Aproximación al territorio de los “constructores de cerritos.” *Arqueología en el Uruguay. VIII Congreso Nacional de Arqueología Uruguaya*, edited by Mario Consens, José María López Mazz and María del Carmen Curbelo, pp. 65- 78. Montevideo.
- _____, and Roberto Bracco 1989, Las sociedades prehistóricas: viejas y nuevas aproximaciones. *Anales del VI Encuentro Nacional y IV Regional de Historia I* (1): 107-114.
- _____, and Roberto Bracco, 1992, Relación hombre-medio ambiente en las poblaciones prehistóricas de la zona Este del Uruguay. *Archaeology and Environment in Latin America*, edited by Omar Ortiz-Troncoso and Thomas van der Hammen, pp. 259- 282. Universitat van Amsterdam, Amsterdam.
- Lumbreras, Luis G., 1974, *La Arqueología Como Ciencia Social*. Ediciones Hístar, Lima.
- Mercader, Antonio and Emiliano Cotel, 2002, 169 años después volvió el cacique Vaimaca Perú. <http://www.espectador.com/perspectiva/per2002-07-18-9.htm>
- Pauketat, Timothy R., 2004, *Ancient Cahokia and the Mississippians*. Cambridge University Press, New York.
- Pauketat, Timothy R. and Thomas E. Emerson (eds.), 2000, *Cahokia. Domination and Ideology in the Mississippian World*. University of Nebraska Press, Lincoln.
- Perelli, Carina, 1986, La manipulación política de la memoria colectiva. In *De Mitos y Memorias Políticas. La Represión, el Miedo y Después*, edited by Carina Perelli and Juan Rial, pp. 117-128. Ediciones de Banda Oriental, Montevideo.
- Porzecanski, Teresa, 1992, Uruguay a fines del siglo XX: mitologías de ausencia y de presencia. In *Identidad Uruguaya: ¿Mito, Crisis o Afirmación?*, edited by Hugo Achugar and Gerardo Caetano, pp. 49-61. Trilce, Montevideo.
- Sociedad “Amigos de la Arqueología”, 1927, Nuestro programa. *Revista de la Sociedad “Amigos de la Arqueología”* I: 5-6.
- Tainter, Joseph A., 1978, Mortuary practices and the study of prehistoric social systems. In *Advances in Archaeological Method and Theory, Vol. 1*, edited by Michael B. Schiffer, pp. 105-141. Academic Press, New York.
- Verdesio, Gustavo, 2001-2002, El retorno del indio olvidado o los usos del pasado indígena en el imaginario uruguayo. *Revista Canadiense de Estudios Hispánicos* 36 (1-2): 63-82
- Vidart, Daniel, 1996, “*Los Cerritos de los Indios*” del Este Uruguayo. Ediciones de Banda Oriental, Montevideo.
- Zorrilla de San Martín, Juan, 1956, *Tabaré*. Ministerio de Instrucción Pública y Previsión Social, Montevideo.

Public Archaeology and Management of the Brazilian Archaeological-Cultural Heritage

ROSSANO LOPES BASTOS
AND PEDRO PAULO A. FUNARI

CONTEXTUAL HISTORY OF HERITAGE LEGISLATION IN BRAZIL

Throughout the nineteenth century, despite official attention to scholarship in general, and the foundation of the Historical and Geographical Institute, there was no law regarding archaeological remains in Brazil. Museum officials as well as amateurs and others often collected and registered archaeological artifacts at will. Nevertheless, and despite a lack of early protection, Brazilian identity has been linked to archaeological heritage since the nineteenth century (notwithstanding a brief eclipse at the beginning of the twentieth century). Romantic nationalism was grounded on the idealization of natives, and archaeology played a role.

Archaeological resources in Brazil have been the subject of several legislative efforts, the first of them in 1920, when the Brazilian Society for the Fine Arts, or “Sociedade Brasileira de Belas Artes,” through its president, Bruno Lobo, asked the keeper of the classical antiquities of the National Museum, Alberto Childe, to prepare a bill for the protection of the national artistic heritage. Childe’s proposal was mostly concerned with archaeological sites and defended the nationalization of these cultural resources. The bill proposed that “archaeological remains, buildings, sites, caves, cemeteries, shell middens are considered national assets and are to be owned only by each state of the Union.” The proposal was not taken into consideration by the Congress, dominated as it was by representatives not interested in nationalization of private property, even if it was aimed at preserving archaeological resources.

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

In 1923 another proposal was put forth, this time by the representative from Pernambuco, Luiz Cedro. During Congressional debates Cedro referred to archaeological remains and their importance for building the historical identity of the nation.

In 1925 another bill was drafted, but this time prehistoric remains were considered worthy of attention only when they constituted art.

Only in 1930 was a bill (Bill 230) proposed (by the representative José Wanderly de Araújo Pinto) that was explicit about the protection of archaeological resources. But it was never to be approved.

Outside the parliament discussions continued, despite the lack of proper laws regarding archaeological resources. In 1935 Raimundo Lopes published a comprehensive and innovative study on cultural resources. Among his progressive suggestions were the following: to keep cultural monuments in their original shape; to reconstruct the original natural and cultural environment; to forbid the economic exploitation of shell middens; to set up educational programs; to register Native cemeteries; to preserve sites and Indians alike; to co-operate with religious authorities on Church heritage; to disseminate information about the archaeological sites.

In 1936 a bill was prepared by the leading intellectual, Mário de Andrade from the State of São Paulo, which sought to protect archaeological and ethnological resources, which were split into four categories: artifacts, monuments, landscapes, and folklore. The Bill, 511/36, was being discussed in the Congress in November 1937 when a coup d'état took place. Shortly afterwards, still in November, President Getúlio Vargas, now dictator, published the bill as a decree, "decreto-lei n. 25/37", dated 30 November 1937. Indeed, President Vargas strongly supported the bill through his Minister of Education.

In January 1937 the government established the Brazilian National Artistic and Historic Heritage Service, "Serviço Histórico e Artístico Nacional" (SHAN), intended to protect, preserve and publicize national heritage. From 1940 SHAN began to register and protect archaeological sites and collections. However, most cultural property continued outside its protection. Therefore, a new Penal Code was also issued for the first time in 1940, to punish the destruction of cultural resources, including archaeological ones. SHAN established a register of protected sites and archaeological collections in 1940, under the authority of Decree 25/37.

In 1948, the State of Paraná passed a law protecting Spanish and Jesuit sites, including the surrounding area of one hundred hectares, resulting in the eventual establishment of the heritage parks of Vila Rica, Santo Inácio and Ciudad Real. Several judges and other officials were also trying to protect shell middens in different parts of the country.

The Prehistory Commission, established in 1952 by Paulo Duarte, sought to protect archaeological sites, shell middens and other remains. Duarte was another leading intellectual, and was to become the main promoter of heritage protection in Brazil. In his view national heritage included pottery, lithics, cemeteries, shell middens, rock art, cave occupations, as well as a variety of natural resources, such as rivers, fauna, caves and even traditional paths. Duarte, a liberal who fought for the creation of Brazil's first university, the University of São Paulo, early in the 1930s, was forced into exile during the dictatorship of Vargas (1937-1945). When he returned to Brazil he brought enlightened thinking about the importance of studying prehistory. Duarte had been influenced by French humanism. His friendship with Paul Rivet and his admiration of the Musée de l'Homme, in Paris, led him to propose the formation of the Prehistory Commission, in São Paulo, later renamed "Prehistory Institute". It was headed by Duarte and included leading anthropologists Helbert Baldus and Egon Schaden among other members.

Duarte was very active in the years of Brazilian democracy (1945-1964), organizing initiatives for the protection of archaeological as well as other aspects of heritage. Duarte and the Prehistory Commission prepared draft legislation that was finally approved by the Congress in 1961 (Law No. 3924/61), the first actual comprehensive law regulating the protection of archaeological remains. While the decree of 1937 had intended to protect “those assets linked to the memorable facts of Brazilian history and those of exceptionable value” (first article), the law of 1961 was much broader in its scope, referring to “whatever archaeological or prehistoric monument” (first article). Archaeological sites were protected unconditionally *ex vi legis*, and Law 3924/61 remains in force as the only explicit federal law on archaeological heritage today.

Law 3924/61 deals with “archaeological and prehistoric monuments” and establishes that they are protected by the law and should be preserved. They are property of the Federal State, to be controlled by the State, and are not subject to the general rules of private property. Archaeological sites in general—such as shell middens, mounds, any ancient human settlement—are considered monuments. It is forbidden to destroy the sites, and economic use of ancient remains is explicitly prohibited. The Law also mentions archaeological excavations and the necessary registration of sites, controlled by SHAN. Archaeological reports and housing of archaeological collections is also mentioned. The export of archaeological resources can only occur when authorized by SHAN.

A military dictatorship was established with a coup d'état in 1964. During the 1960s and 1970s, several scholars, including Duarte in São Paulo and Father Rohr in Santa Catarina, cited Law 3924/61 to protect shell middens, but Brazil was under military rule and enforcement was not forthcoming. The humanist approach to the past, so fundamental to efforts to preserve humble shell middens against developers, was first sidelined and later opposed by the military authorities and their supporters. However, Brazilian archaeology received significant assistance when Betty Meggers and Clifford Evans, two American archaeologists from the Smithsonian Institution who had done fieldwork in Brazil since the 1940s, were able to work in close co-operation with the authorities and set up a large archaeological survey project, known as PRONAPA (National Program of Archaeological Research). Several Brazilian archaeologists were trained in the program.

The restoration of civilian rule in 1985 produced a flurry of archaeological activity as State assemblies and town councils became free to legislate on a wide range of subjects, not the least of which was resource management. Several states introduced legislation protecting archaeological sites and establishing state registers of monuments and archaeological collections. This is especially true of states with strong archaeological activities such as São Paulo and Rio Grande do Sul. Town councils also introduced similar legislation, and several municipal governments created town Heritage offices. Consequently, urban archaeology has developed and there has been a growth of interest in archaeological resources. A new primary school syllabus, introduced in the 1990s, emphasizes the importance of learning from the local reality, so that one's town becomes the starting point for understanding social life. In this context, archaeology plays a special role, showing school children that their town was inhabited by natives in prehistoric times. Furthermore, material evidence from the historic period, recovered by archaeologists, is presented to demonstrate biases in documentary history, and how blacks, natives, people of mixed complexion, immigrants, migrants and poor people in general are underrepresented in official pasts. Local primary school textbooks are now introducing archaeological evidence in order to give the children a more complex view of the past, enabling them to better understand present-day social contradictions.

The major force in Brazilian heritage today is the Instituto do Patrimônio Histórico e Artístico Nacional/ Institute for National Artistic and Historical Patrimony (IPHAN). The new archaeological code, established by Ordinance IPHAN # 230, on 17 December 2002, ensures that archaeologists are included in planning and execution as environmental consultants and counselors. The Ordinance stipulates that environmental licenses (urgent or not), for activities with the potential for damage (socioeconomic, archaeological, environmental) to the finite base of the archaeological cultural heritage, require archaeological studies. Today, archaeological rescue is more successful than in the past, when operations would typically be stopped midway because of difficulties in concluding them (of course, public dissemination of the results was also completely impaired in that case).

A SOCIALLY ENGAGED RESEARCH PROCESS

The Brazilian archaeological intelligentsia has appropriated many different archaeological ideas and interests developed in other countries such as: historical material culture, road systems, and, most recently, submerged archaeological materials including water craft. Underwater archaeology requires profound rethinking of critical legal implications that may have long-term consequences, but this is not the appropriate place for exploring this subject. Quilombos (independent sites or small realms created by runaway slaves) are of intense interest in Brazil, corresponding in a way to American historical archaeology's interest in slavery and resistance to dominant plantation society, but of much greater salience for the national Brazilian narrative given the long-term success (relatively speaking) of some quilombos and their recent legal revival among real or affective descendants (see French 2004).

Detailed guidelines are, of course, essential in the conduct of archaeological research. Most of the current archaeology developed in Brazil is oriented to site protection rather than being independently driven by academic research issues. We conceive of the research process as having a particular relevance to the management and role of cultural patrimony in Brazil, including its great civic potential. Here is our conception of how a socially engaged research process should proceed, from most general to most specific. In some ways the process mirrors procedures already in place in typical U.S. cultural resource management (CRM). In other ways, the process adheres to the Principles of Ethics of the Society for American Archaeology. And there are elements that specifically address the particularities of the Brazilian condition, notably patrimonial education and the potential benefits of cultural tourism around archaeological heritage.

- 1) Preliminary *archaeological evaluation: surface and subsurface prospection*. Before any potentially impacting venture may be initiated, archaeological evaluation should be conducted. It constitutes the first systematic action to recognize the archaeological potential of an area or region. This procedure may include field reconnaissance, embankments analysis, and sub-surface testing as well as systematic study of secondary data, whatever strategies are deemed most appropriate after careful consideration. This stage of investigation evaluates archaeological potential, considering protection as well as patrimonial education. These studies should be mandated by environmental legislation, requiring an Environment Impact Study (EIA), and other environmental evaluations according to each situation—need on a case-by-case basis (ER: Environment Report, PER: Preliminary

Environment Report, ECP: Environment Control Plan, ECR: Environment Control Report). This phase fulfills requirements of the Preliminary Environment Legislation for ventures.

- 2) *Archaeological survey, site identification and inventory*. In this second stage research is more in depth, involving systematic studies to determine the number, location, size, nature, complexity, relevant priorities of archaeological sites and other resources in the study area. This stage is critical for it also involves decisions about further emergency studies. Indeed, it is here that archaeologists determine what elements will become part of the national memory and which will disappear from public and scientific knowledge. It corresponds to the environmental license that must be obeyed in order to obtain the installation license (IL).
- 3) *Archaeological rescue/the choice of meaning*. In this stage excavation of previously selected sites takes place. All research processes must be carefully and permanently documented, community participation must be assured, and archaeological evidence must be protected. This stage is complex, dealing with many factors, including issues of climate and even of security, in accord with what is necessary. When this stage is concluded, a license for operation may be requested so that the venture can continue.
- 4) *Material analysis/laboratory analysis*. Unfortunately, this stage has never been considered as important as the others, at least not by the public. But laboratory study is an imperative and necessary part of any archaeological program, emergency or not. A realistic schedule must be part of the planning, so that high-quality research can be completed in a timely manner.
- 5) *Patrimonial education: formal (school curriculum)/non-formal (communities outreach)*. According to Bruhns (2004), patrimonial education is an essential and important stage. It follows fieldwork and determines the best ways of bringing the acquired knowledge into the national community, and especially those affected by the research. Most of the time knowledge generated by the research reaches the community only when educational activities are built into the research process. Bruhns (2004) writes: "When we work the archaeological collection through patrimonial education, we interact with the local memory and, maybe, we can even interfere in places of the memory – spatial references of collective memories, space of common historical worth where the community can recognize itself, memorize concrete images and visual apprehensions". To fulfill this responsibility, patrimonial education must include formal and informal instruction, becoming an instrument of "cultural literacy" as a "pedagogy that proposes the de-colonization of human beings' memory and imaginary through the cultural dialogue of other beings using processes of sensitivity, self-reading, self-consciousness and collective transformation. ... de-colonizing the political unconsciousness and the corporal memory to intervene into past reproduction; a pedagogy that cultivates intercultural sensibility where an interchangeable conscience is necessary to create new solicitous and co-operative communities as well as new policies of democratic freedom" (Baron 2004: 419). Through patrimonial education the citizen is able to understand his/her importance in the socio-cultural process in which he/she takes part, creating a positive transformation between his/her relationship and the cultural heritage. This should be part of formal education (schools) as well as informal instruction targeting surrounding communities, neighborhood associations, etc. Consequently, patrimonial education

also must guide field research work toward communities' needs, assuring meaningful connection between the people and the new knowledge.

- 6) *Dissemination of archaeological information.* The concept of dissemination directs archaeologists to make their research results available in understandable language and readily accessible form (including to ordinary people of limited economic means) to all who may wish to inform themselves. Furthermore, archaeologists should encourage broader consumption of their knowledge.
- 7) *Museum exhibits (permanent, temporary).* Another desirable stage in archaeological investigation would be the conversion of appropriate archaeological sites into "open air museums" (see discussions in Silverman 2006). Brazil already has had some success in this. One example is the Parque Nacional da Serra Capivara, in the sertão of Piauí, which been recognized by UNESCO, granting it World Heritage List status. Other examples include seashore sites, for instance the rock art of Santinho and Ingleses Beach in northern Ilha de Santa Catarina.
- 8) *Public devolution and social inclusion.* Heritage must involve a devolution of knowledge acquired through any kind of research that supports contemporary societies and analysis of past peoples. Archaeological cultural heritage only achieves its social function when it is understood as a social belonging—something of common use and usufruct by the Brazilian people. Thus, it is urgent that from now on our researchers bring cultural heritage to the population, with citizen-supported preservation.
- 9) *Archaeological conservation.* Above all, we advocate *in situ* archaeological heritage preservation, which is the possibility of keeping the archaeological site in its exact place, where its past populations originally produced it. This idea may transcend the site and objects found there to also include the environment and landscape. It is important to pay attention to three issues of conservation. First, the collections and specimens must always be available for further study by other researchers. Second, according to Federal Law 3924/61, a portion of the original site must be left for future generations of investigators and visitors. Third, some part of the material, whenever possible, should be exhibited to the public, in accordance with security considerations.
- 10) *Archaeological heritage as an instrument of tourist development.* Archaeological cultural heritage becomes an instrument of tourist development only through patrimonial education and social inclusion. Actually, it is impossible to transform archaeological cultural heritage into a "sustainable" tourist development without first developing the attributes needed for public consumption. As already affirmed, archaeological materials are social goods. Consequently, when contemplating archaeological cultural heritage as a vector of tourist development, one must consider engagement with issues of publication, socialization, and inclusion of prehistoric materials in the production of citizenship. Furthermore, cultural heritage tourism should not be divorced from natural heritage: places of natural beauty and historical landscapes. So, it is essential to include interdisciplinary and trans-disciplinary knowledge in the service of society, in a way that enables this knowledge to create a new category of communication that adds new values to the ones that already exist in local sightseeing. Archaeological cultural heritage will always be a social, symbolic, affective and political good that can and should include an instrument of citizenship and social development.

CONCLUSION

For several decades the world has experienced intense neo-liberalism. Certainly, neo-liberalism intrudes into Third World countries, including Brazil, a country that has continental dimensions as well as huge socioeconomic differences—from terrible poverty to provocative prosperity. It is important to examine public archeology in Brazil within these realities. Today Brazil seeks to promote heritage and heritage management in a way that inclines its people towards a cultural citizenship that emphasizes the possibility of social change. It has been a challenge to introduce this issue for it requires an understanding of archaeological cultural heritage at the level of public institutions.

As elsewhere worldwide in general, improvement is needed in public policy to protect and preserve the archaeological cultural heritage. Protection of Brazil's archaeological and historical heritage (including its underwater cultural patrimony) must continue and expand. We call for an alliance of the more liberal Brazilian archaeological strengths to produce a more effective, more inclusive, more socially and politically engaged archaeological praxis. Gradual and systematic advance of legal regulations has little value if there is no engagement of the agents, i.e., the professionals who exercise the practice of archaeology in Brazil. In this regard it is vital to break with pragmatic and conservative thinking that has dominated national archaeology since the creation of scientific development agencies, university departments, and research institutions for archaeological, historical and anthropological resources. Moreover, we must not forget the hegemonic institutions that profited from, and have so strongly shaped the thinking of young professionals, especially during the dictatorship, retarding new thinking. Hopefully, Brazil's immense and fascinating archaeological heritage will increasingly be deployed for the benefit of the citizenry as a whole.

REFERENCES

- Baron, Dan, 2004, *Alfabetização Cultural. A luta por uma nova humanidade*. Alfarrábio, São Paulo.
- Bastos, Rossano Lopes, 2002, *Patrimônio Arqueológico, Preservação e Representações Sociais: Uma proposta para o País através da análise da situação do Litoral Sul de Santa Catarina*. Ph.D dissertation. Museu de Arqueologia e Etnologia, Universidade de São Paulo, São Paulo 2.
- Bruhns, Katianne, 2004, Patrimonial Education Theoretical Methodological Project. In *Estudo do Patrimônio Arqueológico, Arquitetônico e Paisagístico da área de influência da LT 500 Kv - Bateias-Ibiúna/ PR-SP*. Museu de Arqueologia e Etnologia, Universidade de São Paulo, São Paulo.
- French, Jan Hoffman, 2004, Mestizaje and law making in indigenous identity formation in northeastern Brazil: 'After the Conflict Came the History.' *American Anthropologist* 106 (4): 663-674.
- Funari, Pedro Paulo A., 1994, Rescuing ordinary people's culture: museums, material culture and education in Brazil. In *The Presented Past. Heritage, Museums and Education*, edited by Peter G. Stone and Brian L. Molyneaux, pp. 120-136. Routledge, London.
- _____, 2000, Conservation of cultural heritage in Brazil: some remarks. *Archaeologia Polona* 38: 191-201. (Institute of Archaeology and Ethnology, Polish Academy of Sciences, Warsaw).
- _____, 2001, Public archaeology from a Latin American perspective. *Public Archaeology* 1: 239-243.
- _____, 2005, Reassessing archaeological significance: heritage of value and archaeology of renown in Brazil. In *Heritage of Value, Archaeology of Renown, Reshaping Archaeological Assessment and Significance*, edited by Clay Matthers, Timothy Darvill, Barbara Little, pp. 135-149. University Press of Florida, Gainesville.
- Silverman, Helaine (ed.), 2006, *Archaeological Site Museums in Latin America*. University Press of Florida, Gainesville.

Conclusion

WILLIAM H. ISBELL

INTRODUCTION

Like Julian Steward's much greater project (*Handbook of South American Indians*), our *Handbook of South American Archaeology (HSAA)* is intended to be descriptive, analytical, and even political. We hope that it will encourage scholars and lay readers to better understand how much they have in common, promote archaeological research, and band together into a cooperative community for the protection of archaeological patrimony and the development of heritage. No nation alone can achieve these goals. Multi-country and world-wide commitment and participation are essential.

Our intention in creating the *HSAA* was to bring together in a single collection current articles describing the people and cultures of the aboriginal South American past. There were many reasons for having undertaken such a project, but certainly our primary motivations involved the fact that as archaeological area studies increase, the practitioners and their discourses become more knowledgeable and specialized, and also more involuted, with fewer and fewer relationships among scholars in neighboring places. Eventually, continental issues and common goals recede into the background, replaced by concerns as well as knowledge defined in local, regional and national theaters. With few exceptions archaeologists are no longer South Americanists, but Amazonianists, Caribbeanists, Central Andeanists, etc. Many pre-historians, and especially the residents of modern South American nations, have become even more spatially specialized, bounded by the arbitrary frontiers of modern states – the archaeology of Peru, or Argentina, or Colombia, etc. Of course, modern national boundaries have nothing to do with prehistoric cultures and their spheres of interaction, but they have everything to do with the current practice of archaeology, from institutional control of archaeological patrimony to professional training and circles of colleagues, to journals, associations, and languages of communication. Furthermore, more and more contemporary archaeology is linked to identity, that is, almost always, presently defined as *national* identity, or regional or community identity. Rarely does the framework involve a more international Native American identity, or global humanist identity. Surely,

Handbook of South American Archaeology, edited by Helaine Silverman and William H. Isbell.
Springer, New York, 2008

our new century will see this change, as enlightenment ideology of national sovereignty is eclipsed by international organizations such as the Mercosur in the South American southern cone and the European Union, to say nothing of postmodern globalism. In the meantime, we need grander, continental perspectives on the past. Necessarily, the *HSAA* expresses the area foci of our era, but it seeks to promote knowledge of a whole, stimulating dialogue and collaboration among the diverse assemblage of pre-historians and other readers interested in the South American continent.

By bringing together this set of integrative summaries and analytical discussions – some from traditional, but many from less conventional perspectives – we hope to encourage a more inclusive intellectual gaze, embracing the continent, among South American archaeologists as well as the broader community of scholars, students, and lay readers who enjoy archaeological knowledge. Beyond the increased depth of knowledge area specialists acquire when they refine their understandings of neighboring cultures, the teaching of *South American* archaeology may benefit from more continental perspectives, as well as the new instructional resource that the *HSAA* represents for comparative scholarship, presenting current statements as well as extensive bibliographies that should promote cultural comparisons and generalization, both among the prehistoric cultures of South America and between South American and other societies of the ancient world.

TRANSCENDING CULTURAL AREA STUDIES: INDEPENDENCE AND INTERACTION

Cultural area studies are sure to continue growing in the future, focusing and specializing as scholarship advances, but it must be remembered that the ancient native people of South America experienced more than just their own culture area. They participated in continental processes of cultural adaptation, domestication, migration, and interactive culture change, making it especially important to embrace a continental perspective. South America was more isolated and independent than any other continent except Australia, and it was certainly the most isolated continent to achieve intermediate range and complex societies through wholly autochthonous processes. While there will always be questions about cultural diffusion from other areas – such as documented by occasional interchanges with Mesoamerica (Hosler 1996; Marcos 1995), there can be no question that the emergence of social inequality, political hierarchy, civilization and empire in South America was an exclusively South American process. South American societies developed their cultural potentials within the continent – including such distinctive structural configurations as dual organization shared continentally, from “marginal tribes” in the East Brazilian highlands to “civilized” Incas of the Central Andes. One clear proof of South America’s independence is the khipu, a unique solution for information recording (Urton, this volume). All forms of writing in early civilizations shared certain characteristics (Trigger 2003), except the South American khipu, which was entirely innovative, distinguishing South America’s achievement of civilization from processes in the rest of the world.

At first glance South America appears to be a continent of such extremes that one might suspect concomitant areal isolation. But such is not the case. Long-distance contact and population movement is part of the prehistory of the continent from earliest peopling into the latest pre-Hispanic period. South America is uniquely equatorial. The continent clusters around the largest tropical forest region in the world, containing the greatest natural waterway of the globe. The immense Andean cordillera actually creates a remarkable high

elevation pastoral corridor, facilitating north-south movements by hunters, pastoralists, and armies whose quartermaster depended on llama caravans. A small number of language families were widely dispersed, demonstrating shared cultural heritage extending into the remote past, while South Americans continued carrying out remarkable expansions up to the moment of European invasion – expansive cultures as different as the Caribs, Arawaks, Tupi, Wari, and Incas. There is no culture in South America that did not participate in uniquely South American heritage and experience, sharing the environment, ancient cultural patterns, and communities of neighbors.

CULTURAL COMPARISON AND SOCIAL EVOLUTION IN SOUTH AMERICA

Notwithstanding various post-processual assaults, cultural evolution is still the most important master theory for anthropological archaeology, and South America continues to play an important role in its theorization. In the 1940s, faced with the daunting task of organizing South American societies into volumes for the original *Handbook*, Julian Steward's approach was evolutionary – “marginal tribes,” “tropical forest tribes,” “Circum-Caribbean tribes,” and “Andean civilizations.” There can be no question that Steward's classification established foundations for the evolutionary stages employed almost universally by Americanist archaeologists in the 1960s and '70s: “band,” “tribe,” “chiefdom,” “state” (Sahlins and Service 1960; Service 1962, 1971; and see also Fried 1967). Equally apparent, critical scholarship springing from Service and Sahlins' scheme underlies Kent Flannery's (2002) most recent pronouncement of the universal stages of cultural evolution: “hunting and gathering band,” “autonomous village society,” “rank society,” “chiefdom,” “archaic state,” and “empire”. The problem is that along the way Steward's original emphasis on multi-linear evolution – evolution that celebrated variation – became progressively unilinear – evolution emphasizing a single sequence of stages. “Descent with modification” is no longer the grounding concept of this variety of cultural evolution, as in its biological analogue, for cultural evolution has been re-defined as *transformational change* – change from one stage or level to another. For subscribing scholars, cultural change that is not transformational is considered irrelevant “drift,” permitting extraneous variations to accumulate, like different word pronunciations as languages separate through time (Flannery 2002; Stanish and Haley 2005).

South American archaeology reveals the inadequacy of currently popular unilinear evolution, recognizable by its focus on cultural progression through a set sequence of stages, each conforming to an ideal culture type. It also demonstrates the inadequacy of somewhat more flexible models based on unilinear evolution, such as “dual-process theory” (Blanton et al. 1996), by the remarkable societal variability apparent in the continent's archaeological past. In spite of South America's impressive isolation and developmental independence, its shared, deep cultural traditions, its universal tropical sky, its vast environmental regions and its natural pathways of communication—pre-Hispanic cultures were bewilderingly varied in form as well as evolutionary trajectories. In fact, perhaps the greatest contribution of the *HSAA* is the frequency with which South American prehistory surprises us, thwarting traditional expectations, and of course, confirming affirmations of phenomenology that knowledge *does* come from in-the-world perception – postmodernists to the contrary (Sokolowski 2000). While South American cultures have certainly evolved in size, organizational complexity, and technological sophistication, they do not conform to

popular, unilinear formulations about evolutionary changes. Robert Drennan (this volume) states the case most succinctly, even though speaking only for middle range societies from southwestern Colombia:

Not only did the episodes of rapid social change discussed above come at different times, they produced chiefdoms of distinctly different character. ... All this amounts to a remarkably varied pattern of changes in just a few regions not very widely separated from each other. The complicated and varied interplay between economic and symbolic bases of power, between subsistence and craft economies, between highly personal and more communal leadership, and between nascent and fully institutionalized social hierarchy produces a rich array of different social forms within the broadly defined chiefdom class. This array altogether fails to correspond to any simple dichotomy or single gradient, such as the recently popular one playing a corporate mode of organization off against a network mode (Blanton et al. 1996). The multiple important axes of variation just do not fall into the simple pattern of correlation suggested (for example, by Feinman 2001). This situation does, however, offer rich opportunities for continued research aimed at providing fuller and more reliable reconstructions of the nature of the societies ... to sustain further efforts to understand the processes that produced them and gave them their distinctive characters.

South America's array of archaeological surprises begins as soon as people reached the continent. North Chile's Chinchorro peoples were neither hunting and gathering bands, nor autonomous village societies. By the end of the Pleistocene they were enjoying a sedentary life style but based on fishing in coastal bays and river mouths (Arriaza et al., this volume). By 7,000BP they were practicing astonishingly elaborate mummification of at least some corpses, which might normally be interpreted as indicative of ranking, although nothing else about Chinchorro culture reveals social hierarchy. On the other side of the continent, material remains from Brazilian shell mounds are not so well preserved, but imply long-term occupation and steps toward complexity (Gaspar et al., Chapter 18 of this volume).

Even more surprisingly, by between 5000 to 4000BP, substantial artificial mounds were constructed by foragers of the Pampas and Campos (Politis, this volume) – “cerritos de indios” in Uruguay (see Verdesio, this volume) and “aterros” in Brazil. Qualifying as some of the earliest monuments in the New World, they represent an autochthonous lowland architectural tradition almost exactly contemporary with Peru's first temple mounds (Pozorski and Pozorski, this volume). Denise Schaan (this volume) describes Marajoara culture, which produced immense mortuary mounds and spectacular ceramic art, as an essentially non-agricultural chiefdom based on remarkably complex, but communally maintained, facilities for fishing a seasonally inundated landscape. Apparently, neither agriculture nor autonomous village society were necessary for significant social complexity in South America.

Surprisingly, South America's earliest pottery comes not from the Central Andes, nor even the Northern Andes, but from Amazonia (Neves, Oliver, this volume). Studies of historical ecology contradict old ecological precepts with, for example, Amazonian Dark Earth (ADE) showing that human occupation can significantly *improve* environments and immensely increasing carrying capacity, contrary to the precepts of traditional human ecology (see Erickson, Neves, Oliver, Rostain, Versteeg, this volume). Throughout South America, domesticated plants appeared much earlier than ever imagined (Pearsall, this volume), and Pleistocene adaptations look much more like the Archaic in North America. Ecuador and Colombia (the North Andes), not Peru or Bolivia (the Central Andes), appear to have been the places where the first steps were taken toward “autonomous village societies”

(Raymond, Zeidler, this volume). But villages are not a natural outgrowth of sedentary farming, as southwestern Colombia's dispersed households show (Drennen, this volume). In fact, "autonomous village societies" do not seem to have been the antecedent of intermediate or complex society in the Central Andes, where by Late Pre-ceramic (Late Archaic) times, settlements were integrated into valley-wide systems that constructed huge monuments and centers – perhaps cities – before the transition to sedentism and agriculture was fully achieved.

Regarding Andean cities, all scholars would likely agree that the Central Andes was an urban society from at least Middle Horizon times, if not dramatically before (e.g., claims for cities in Late Pre-ceramic by Shady 2006 or Initial Period Peru by Pozorski and Pozorski, this volume). But Makowski (this volume) argues convincingly that Central Andean cities were so different from urbanism in the rest of the world that "anti-urban" better describes at least Peru and Bolivia. Furthermore, of the first "empires" to arise in South America, Tiwanaku strains the ideal evolutionary type almost beyond recognition (Isbell, this volume). The list of South American surprises goes on, exceeding available space.

CURRENT ISSUES IN SOUTH AMERICAN PREHISTORY

Archaeological field research by South American area specialists has dramatically transformed the continent's prehistory in just the past few decades with an abundance of new information. The Andean, and particularly the Central Andean, culture area was archaeologically privileged by an early burst of investigation in the late nineteenth and early twentieth centuries, with German scholar Max Uhle leading the way. When Steward produced the *Handbook of South American Indians* fifty years later, many parts of the continent were still completely unknown archaeologically, or known very poorly. Moreover, some scholars were transient. The South Americanist pre-historian could devote a season to Venezuela, a second to Argentina, and a third to Bolivia, and make profound contributions in each place by simply establishing a stratigraphic sequence of ceramic styles. But today, few areas are unknown, as investigators from universities, museums, and national archaeological authorities reveal the past in even extremely remote locations. Furthermore, new techniques for, and approaches to, the recovery of archaeological information are finally overcoming at least some of the incredibly destructive effects of the wet tropics on archaeological artifacts and related remains of human activities (see Stahl 1995). At last, even the Amazonian jungles are giving up secrets of early human settlement. In fact, the abundance of new information from Amazonia is perhaps the most impressive current development in South American prehistory. These and other new research programs contribute to a dramatic increase in the knowledge of South American archaeology throughout the continent since publication of the *Handbook of South American Indians*. These advances, collected now into the *HSAA*, provide a new resource that reveals a changing flavor to the South American past.

How have new investigations changed South American archaeology? Certainly, there are too many innovative discoveries and creative new interpretations for all to be reviewed here, but something of the new flavor can be brought out by considering a few of the great problems that beleaguered the South American past throughout the last half of the twentieth century. These issues and their protagonists shaped debates, motivated research, determined funding priorities, and established the outlines in terms of which South American pre-history was presented. Among the key debates were the antiquity of humans in South America, the origins of agriculture and village life, and the role of Amazonia in South

American cultural evolution (were its societies developmentally late and simple recipients of innovations made in the Andes, or were Amazonian cultures precocious, intermediate level donors of cultural developments to surrounding areas, including the Andes?). Other important debates have regarded origins of South American civilization – and the nature of Andean states and urbanism. Finally, what is happening to South American cultural patrimony? Is the archaeological record contributing to heritage, and how?

The Peopling of South America

There is a pervasive image in western hemisphere nations that characterizes the past as “taming nature’s wilderness,” imagined as civilized European men spreading into American interiors. So popular is the image that even environmental scientists have fallen into this erroneous representation of the past, imagining pre-European flora and fauna as untouched by human intervention (Denevan 1992; Stahl 2002). But this was not the case. Humans have been in the Americas for a long time – but just how long? Indeed, it seems more and more apparent that it was the last great land mass on earth to be populated.

A review of the Paleoindian literature, and especially the “Clovis First” argument is unnecessary for it is published in many, easily-available books and journals (see summary in Dillehay 2000). In brief, most archaeologists agree that the Americas were populated by immigrants from Asia, who entered the continents via the Bering Strait. The immigrants were either terrestrial hunters who walked into the new continents in pursuit of big game, or littoral hunter-gatherers who paddled small boats along frozen shorelines, fishing, collecting, and hunting marine mammals, or both. The first migrants must have entered North America long before they reached South America, so human antiquity in the southern continent has always been capped by dates from North America.

In North America, there has been a long-enduring consensus that no convincing evidence for human activities precedes the Clovis culture, with its diagnostic fluted projectile points, dated between about 11,500 and 10,500 BP (uncalibrated). To the degree that this “Clovis First” argument is correct, the peopling of South America would have to be later than 11,500 BP, and probably half a millennium or more later, for the first inhabitants of North America had to travel thousands of kilometers to reach South America. Most archaeologists theorize that population growth and demographic pressure were the mobilizing agents, since the migrants had no knowledge of what lay ahead. Even under ideal conditions, expansion would not have been many kilometers each generation.

The “Clovis First” argument was seriously questioned from the 1960s by South American excavations yielding radiocarbon dates in excess of 11,500 BP. Taima Taima in Venezuela, Tagua Tagua in Chile, Pacaycasa in Peru, Pedra Furada in Brazil—to name some of the more notorious sites—produced radiocarbon dates from a few centuries before the Clovis barrier to 30,000 BP and earlier. However, rigorous interrogation of the data from each site revealed serious inadequacies. In some cases the artifacts were not convincing. In others the organic samples that had been dated were not securely associated with the artifacts. In one case, what appeared to be butchering marks on bones of Pleistocene megafauna might actually have come from activities long after the death of the animals. One by one, virtually all of South America’s early finds were discredited [Note 1], until the discovery of Monte Verde by Tom Dillehay and its indisputable shattering of the Clovis Barrier (see summary in Dillehay 2000 and Chapter 2 in this volume).

Indeed, as the chapters by Dillehay (Chapter 2) and Borrero (Chapter 4) in this volume show, from both Chile and Argentina, archaeological sites with dates in excess of 12,000 BP

are too frequent and too convincing to be dismissed. However, dated remains in excess of 11,200 BP are not the major story. More significantly, virtually all of South America, from Tequendama in Colombia to Fell's Cave at the southern tip of the continent, has remains of prehistoric settlement *contemporary* with North American Clovis culture – at least 11,200 to about 10,000 BP. Apparently, these South Americans migrated through North and Central America long before anyone manufactured a Clovis point.

Clovis-era occupations are found in almost every South American ecozone. As Roosevelt, Douglas and Brown (2002) emphasize, these were not the arriving migrants but the first round of adaptations to the new continent – cultures already well accommodated to specialized environments. Among them are the earliest peoples documented in the Amazonian forests, at Caverna da Pedra Pintada (Roosevelt et al. 1996; Oliver Chapter 12 in this volume). Apparently, as North American hunters were learning to kill and butcher mammoths and giant bison on the great plains, Paleoindians along the Amazon mainstream had learned to exploit a wide range of tropical fruits, seeds, and palm products, to fish in river estuaries, and to hunt small game in adjacent forests. Their stone tools seem crude, but they painted curious images on rock shelter walls, implying a rich spiritual life probably associated with significant sedentism. Indeed, several *HSAA* authors make the point that Late Pleistocene South American cultures were much like the Holocene cultures of the North American Archaic in terms of their broad-spectrum foraging.

At last it is clear that South America was populated during the Pleistocene, before Clovis culture appeared in North America. Significantly, none of the *HSAA* authors supports a much earlier Pleistocene occupation (i.e., millennia before Clovis culture), except perhaps Navarrete (this volume) with his citation of Taima Taima. The other sites dated earlier than 13,000 BP have been omitted as unconvincing. So, although the peopling of South America was pre-Clovis, it seems not to have been much pre-Clovis. The new maximum may well be about 13,000 BP, with continental dispersal seeming extremely rapid. Perhaps Clovis and the early South American cultures are all descendent of the same initial migrants, adapting to different New World environments.

Other issues regarding early human colonization of the Americas remain far less resolved than the Clovis Barrier. On the basis of skull morphology, it seems that in South America, and probably throughout the New World, there was an *early* physical type more closely resembling Australians and Pacific peoples and a *later* morphological type more like Asians and modern Native Americans (Neves et al. 2005). This suggests at least two migrations, probably in temporal sequence. Two waves of different people with different cultures would fit nicely with two early lithic traditions generally identified in South America, a unifacial Edge-Trimmed Tradition, and a Bifacial Tradition (Dillehay Chapter 2 in this volume). However, at present there is no detectable chronological difference between these two technologies, and neither has been associated with one or the other early physical types in South America. Perhaps these technological differences are simply adaptations to different kinds of environments: wood working in forests vs. grassland hunting, for example. Perhaps skull morphology also represents adaptation to new conditions in South America – chewing different kinds of food, for example.

Studies of molecular genetics do not seem to square with morphological or cultural difference among the early Paleoindians. In an excellent summary, Schurr (2004a, b) presents the case for a single Paleoindian migration into South America, even though later waves represented by different modern haplotypes probably reached North America. Fortunately, there are some contributions from molecular genetics that appear to support parts of the archaeological picture. Several approaches to dating the migration(s) with molecular

clocks suggest modestly pre-Clovis arrival – about 12,000 to 14,000 BP (or about 13,500 to 16,000 cal. BP, alternatively referred to as calendar years).

Now, if Paleoindians were migrating from Asia via the Bering Strait into the New World by 13,000 or 14,000 BP they were not following a continental route, for Alaska and much of Canada were covered with glacial ice. The alternative seems to have been the coastal path, employing water craft (Fladmark et al. 1988; [Note 2]). If this were the case, it is possible that marine hunters, fishers and gatherers spread quickly down the west coast of the Americas, dispersing inland only where attractive conditions prevailed, and perhaps actually moving north again through the interior when climate improved in Holocene times. Perhaps the North American archaeological record does not constitute the definitive temporal ceiling constraining the antiquity of human settlement in South America after all!

Sandweiss (Chapter 10 in this volume) makes important points relevant to a coastal dispersal route for Paleoindians, in his discussion of the antiquity of fishing in South America. If Pleistocene settlements were on ancient shorelines this evidence was inundated as sea levels rose, except on beaches where geological uplift has been as rapid as the encroaching ocean, swelled with post-Pleistocene glacial melt. Parts of Peru and Ecuador have rapidly rising coasts, and early human occupational histories. However, readers should note that Sandweiss presents calibrated dates (pre-Vegas occupation about 13,000 to 11,400 cal BP; Las Vegas site about 11,400-7500 cal BP; Amotape campsites, 12,200 cal yr BP; Quebrada Tacahuay about 12,900 to 12,000 cal yr BP), that are 1,500 to 2,000 years older than equivalent dates in radiocarbon years, employed by most other *HSAA* authors (see discussion in Preface of this volume). So the Ecuador-Peru coastal sites are contemporary with Clovis and early post-Clovis Period cultures, not the pre-Clovis sites of Chile and Argentina. Temporally, they seem to represent the first or second round of adaptations to local environments, not the initial migrants.

The Chilean and Argentine pre-Clovis sites appear to represent terrestrial adaptations. Similarly, in Venezuela, megafauna seems to have been the primary prey at possibly pre-Clovis Taima Taima, implying specialized terrestrial hunting that differed significantly from marine fishing, hunting and gathering. If the initial dispersal of Paleoindians was along the coast, employing watercraft, Vegas, Amatope, Quebrada Tacahuay and the other earliest western coast settlements are not their remains. They are a millennium or more too late. None of the “earliest sites,” more than 12,000 uncalibrated BP, has been found in coastal environments, even where the coastline has been rising. The archaeological record is paradoxical, although coastally adapted migrants would help explain the antiquity of Chinchorro fishers in northern Chile, who had achieved significant sedentism at sites like Acha and Las Conchas as early as 10,000-8,000 BP (Arriaza et al. Chapter 3 in this volume). By 7,000 BP they were practicing complex mummification. Was Chinchorro a legacy of the initial migrants? The collapse of the Clovis Barrier poses a set of exciting new questions.

Origins of Farming and “Autonomous Village Society”

In the past, archaeologists imagined hearths of domestication where associated complexes of plants were tended into dependence on human-created environments – farmers’ fields. It was also imagined that centers favored by enough of the new cultigens would develop sedentary villages that in turn, represented the first step toward civilization. This kind of adaptation has been called the “Formative Stage” by many cultural evolutionists. Early Middle Eastern farming villages probably best represent the ideal type (see Redman 1978) and in the Americas archaeologists sought the first farming villages in areas where civilization

was also achieved very early (see Flannery 1976). These locations, Mesoamerica in the north and the Central Andes in the South, were considered the hearths of plant (and animal) domestication, the sources from which farming villages spread, and the precocious centers where progressive intensification of farming led from simple, to intermediate, to complex societies.

In the final decades of the twentieth century, South American archaeology has benefited immensely from paleoethnobotanical studies of prehistoric plant use and the beginnings of farming. New techniques and methods permit the recovery of macrofossils, pollen, phytoliths, and starch microfossils from diverse contexts, including residues on tools, cooking pots, and even human teeth. The great increase of information is showing that intensive use and morphological modification of plants was much earlier and more widely dispersed in South America than anyone imagined. Pearsall, Raymond, Sandweiss, Oliver (Chapters 7, 5, 10, 12, respectively) and others show that while North American Paleoindians were chasing big game, South Americans were practicing broad-spectrum foraging, living semi-sedentary lives, and in many cases, changing the selective factors operating on plants. Squash has been identified at Las Vegas, Ecuador, in strata dated about 9750 BP, and by 9000 BP phytolith size suggests domestication. Llerén and maize were not much later in Ecuador, and in Colombia arrowroot, macaw palm, and other tropical plants were at least under human control by 10,000 BP (Chapter 7, this volume). Even as far south as Argentina and Chile, traditionally considered the most remote from centers of domestication, maize, beans and chili peppers were present before 8000 BP and a full complement of crop plants was available, either locally domesticated or introduced, between 4500 and 2500 BP. But few if any of these cultures were characterized by sedentary villages.

Increasingly, it seems that in South America, village life was *not* strongly linked to agriculture. It apparently was neither the context in which domestication occurred, nor the most probable outcome of increasing dependence on farming. Rather, the critical cultural adaptation seems to have been broad-spectrum foraging, associated with various degrees of mobility, but emphasizing successive occupations of the same locations, encouraging the development of useful patches of plants (see Chapters 7, 12, 14, 20, 57, this volume). Erickson (Chapter 11, this volume) may have captured the essence of the process when he affirms that South Americans didn't really domesticate plants – they domesticated local environments. In some cases it appears that horticulture was practiced by mobile communities for millennia without sedentary villages appearing. In others sedentism is apparent, but in dispersed households, not villages (Drennan, Chapter 21). However, in some cultures, such as Ecuador's early Valdivia, a marked switch to villages is clearly documented archaeologically. Curiously, there seems to have been little apparent change in the plant inventory or technology of farming between earlier and more mobile Vegas lifeways and the first Valdivia villages (Chapters 5 and 24, this volume). Of course, fisher peoples such as the Chinchorro maintained sedentary or semi-sedentary communities for millennia with little or no farming (Chapter 3, this volume). Apparently, in South America, farming was not a necessary or a sufficient antecedent for sedentary village life. Continental prehistory shows that evolutionary causality was much more complicated and diverse.

South America's earliest sedentism on the north central Peruvian coast did not produce sedentary village society either. Early and Middle Pre-ceramic foragers employed a mix of wild and cultivated plants, but lived relatively sedentary lives along the coast where fishing was sufficiently productive. Late Pre-ceramic settlements included new farming communities well up valley, where small-scale irrigation was practiced, but they were integrated into complex settlement systems dominated by centers filled with huge architectural monuments.

Role of Amazonia in South American Cultural Evolution

Two radically opposed models and their respective proponents have shaped archaeological discourse about Amazonia during at least five or six decades – although we must remember that until at least very recently, these scholars were working with woefully little actual archaeological information. Betty Meggers almost single-handedly brought cultural ecology and evolution back into the practice of modern American archaeology, while also conducting excavations in remote areas of Amazonia with her late husband, Clifford Evans. She argues that most of Amazonia has a very low carrying capacity. Consequently, deterministic laws of environmental potential dictate that cultures occupying the neotropical forest are destined to be small and simple. Little or no evolutionary development took place across the vast Amazon Basin. Instead, Amazonian prehistory consists of a succession of migrations that swept out of the culturally more complex (and ecologically more productive) Andes, down tributary rivers and onto the mainstream floodplains. In many cases the ceramic styles of these migrants eventually reached the far corners of the tropical forest ecozone, as migrations in search of farm land continued. But in the expansion process these complex Andean societies quickly devolved. Intensive highland agriculture gave way to extensive, slash and burn horticulture. Communities became smaller and more mobile, economically less differentiated, politically less stratified, and significantly simpler in terms of technology and material culture. For Meggers (1957, 1971; Meggers and Evans 1961), down-river migrations are documented archaeologically by a series of horizon styles in ceramics, that structure the chronology currently employed by archaeologists throughout Amazonia.

Donald Lathrap (1970) presented exactly the opposite interpretation. Influenced by plant geographer Carl Sauer (1952), he argued that the floodplains of the Amazon main-streams offered rich environments, perfect for initial plant domestication. In Lathrap's model semi-sedentary tropical foragers concentrated beneficial plants around their camps, gradually domesticating them, especially palms and vegetatively reproducing root crops. By 5,000 or 6,000 BP, tropical forest Indians had domesticated numerous plants, developed efficient horticulture, and established village life. They were also growing demographically to fill the most desirable niches – floodplains of larger rivers carrying heavy sediment loads from recently uplifted mountains, especially the Andes. As farming improved, population increased, intensifying competition for floodplains land. Less successful groups were pushed off the most desirable terrain, some into terra firme forests to return to hunting and gathering, and others up lesser tributaries to become more extensive and mobile farmers on the poorer soils. Successive technological breakthroughs promoted demographic surges that pulsed up-stream in migrations from a Central Amazonian heartland, resulting in successive linguistic dispersals – Pre-Mipuran Arawak, Mipuran Arawak, Carib, Tupi, and others. Archaeological documentation is the series of horizon styles in ceramics that structure the chronology currently employed by archaeologists throughout Amazonia (virtually the same evidence used by Meggers). Each linguistic dispersal was associated with one of the great lowland ceramic series such as incised rim or Barrancoid pottery, the polychrome horizon, and the others reported by *HSAA* authors (Navarrete, Neves, Noelli, this volume), from the Caribbean coast to the Parana – of course, with diverse local names.

Continuing Lathrap's scenario, far to the west some of these tropical farmers found themselves in small, deeply entrenched, but rich Andean river tributaries. Diminutive but annually renewed alluvium produced prodigiously. Pushed ever higher by population pressure from down stream, tropical forest cultivators found that at intermediate altitudes their traditional crops were no longer hardy enough for the increasingly cold. Gradually

they replaced them with Andean plants, especially roots like racacha, potato and oca that resemble tropical manioc, arrowroot, and sweet potato in reproductive process and way of planting. Where mountains were low, as in northern Peru-southern Ecuador, and Colombia, lowland farmers leapfrogged the cordilleras to settle in forests to the west, diffusing Amazonian culture still farther. But where the mountains were high, tropical crops were abandoned in favor of hardy, altitude-tolerant cultigens, as the intermountain basins were settled. In Lathrap's model, this is how innovations diffusing from the Central Amazon reached the Andean highlands, as well as the western and northern lowlands of South America, introducing domesticated plants, farming technologies, village life, ceramics, and spiritual ideologies that emphasized jaguars, harpy eagles, and anacondas - the top predators of neotropica.

Meggers imagined a poor and late Amazon receiving people and cultural developments from South America's western and northern highlands. Lathrap imagined a rich and early Amazon, incubating language families, populations and pottery styles, as well as agricultural innovations that diffused west, north and even south into llanos and Chacoan environments.

Modern archaeology confirms neither of these models, at least in the extremes enunciated by the two prophets as they grappled with one another. However, Lathrap's representation of Amazonia as rich, early, and culturally innovative, is receiving significant support from a series of recent archaeological discoveries. For example, Lathrap predicted that the Amazon mainstream would produce South America's earliest pottery, manufactured by its early sedentary horticulturalists. And, indeed, pottery along the Amazon mainstream is now dated a thousand years older than anywhere else on the continent (Oliver, this volume; Roosevelt et al 1991). But apparently, it was not produced by farmers, as Lathrap predicted. Current data imply that by 7000 BP, residents of Amazonia occupied more or less permanent settlements and manufactured pottery, but supported themselves by fishing, shellfish collecting, and gathering plant foods. These riverine shell-mound dwellers appear not to have adopted farming for millennia, perhaps no earlier than about 4000 BP. Apparently, like so many others, Lathrap significantly overestimated the importance of farming in South American cultural evolution, in this case, Amazonian farming.

Farming on the west coast of South America, especially Ecuador, seems to have been considerably earlier than in the Amazon, where pottery also made a precocious appearance, by about 5500 BP (Chapters 5, 7, and 24, this volume). Colombia has even earlier ceramics, by about 6000 BP, but there seems to be less evidence for the early importance of domesticated plants than in Ecuador (Chapter 5, this volume). Do these tropical lowland ceramic traditions of western and northern South America represent diffusion from the Amazon, as Lathrap suggested? Certainly there was much more interaction between Amazonia and the northwestern lowlands than formerly realized - by 4500 BP, and perhaps even earlier (Salazar, Valdez, Zeidler this volume). Furthermore, northern Peru seems to have been tied into the same sphere of exchange from late Archaic times (Church and von Hagen, Guffroy, this volume). But it seems unlikely that there was only one center of invention and diffusion, as Lathrap imagined, the Central Amazon. Oliver (this volume) suggests that at times, diffusion may have been from the Andes into the Amazon, and at other times the reverse, a compromise interpretation that combines aspects of Meggers' model with Lathrap's.

What the *HSAA* clearly shows is how early and widespread late Pleistocene and Holocene foraging economies were throughout South America, economies that promoted significant sedentism, experimentation with horticulture, and treatments of plants that encouraged domestication. The Lathrap-Meggers controversy is not resolved and continues

to provoke exchanges, sometimes strident and partisan. But as it becomes clear that neither scenario is entirely valid perhaps the most profitable outcome of the 50-year-long squabble is the sophistication of “historical ecology,” (Balée 1998; Balée and Erickson 2006; Erickson, this volume), nurtured by the new practitioners of Amazonian prehistory, to replace Meggers’ once innovative, but more deterministic, cultural ecology.

Historical ecology is associated with pioneer Carole Crumley (1994), but Amazonian scholars are among its principal advocates, producing insightful investigations of long-term interactions between people and landscapes (Denevan 1966, 1992; Stahl 2002; Balée 1998; Balée and Erickson 2006; Erickson, this volume). A revolutionary new understanding of the neotropical past, as well as human environmental management is emerging, that has broad implications for Amazonia, for anthropological theory, and for modern strategies of sustainable development in a world of overwhelming demographic growth. For example, it is now clear that raised field agriculture and similar earth-moving strategies – not always associated with farming – transformed vast areas of South America (Chapters 13, 15, 16, 17, 19, 22, 46, this volume), turning lands judged “marginal” by modern agronomists into areas that supported dense occupations and complex cultures for centuries. Similarly, Amazonian Dark Earth (ADE) is apparently wholly anthropogenic (Chapters 11, 12, 13, 17, this volume). Very surprisingly for contemporary development theorists, human activities can improve local environments as much as most modern approaches to production seem to exhaust them.

Origin of South American Civilization

Volume 2 of Steward’s *Handbook of South American Indians* was devoted to the “Andean Civilizations,” particularly the high cultures of the Central Andes. For decades the great question in Central Andean archaeology had been, “Where, when, and how did Andean civilization begin?”. When the original *Handbook* was published it had only recently been determined that Chavin was not part of the Tiwanaku spread, but significantly older (Bennett 1946). And Julio C. Tello (1943, 1960) was arguing that the Chavin culture was the “mother culture” of Andean civilization, developed in the Peruvian highlands at the site of Chavin de Huantar (see Burger, this volume). But there were alternative theories. Rafael Larco Hoyle (1939) located the origin on Peru’s north coast with the Cupisnique culture, while Arthur Posnansky (1914) placed it at Tiwanaku, in Bolivia. Of course, all these theories assumed a single, precocious origin, and hyperdiffusionism.

As radiocarbon dating was perfected, and diffusionist archaeology was replaced by evolutionary thinking, general concepts of civilization were refined and replaced with very precisely defined stages of cultural evolution. Multiple origins and more or less independent but parallel evolutionary trajectories were assumed for different cultural regions. In the popular evolutionary sequence outlined previously – “hunting and gathering band,” “autonomous village society,” “rank society,” “chiefdom,” “archaic state,” and “empire” – it was the transformation from chiefdom to archaic state that is considered to initiate civilized life. And indeed, recent (often quite argumentative) archaeological discussions of Andean cultures devoted an enormous amount of attention to the chiefdom-state transition.

Somewhat simplifying the origins of Andean civilization debate, over the past twenty-five years or so, most South American pre-historians have agreed that state government was appearing in the Central Andes during the late Early Intermediate Period (ca. 200 BC – AD 700) and the early Middle Horizon (ca. AD 650 – 1100), at least semi-independently in several locations. The critical time probably began about AD 400–500, and by AD 700–800

institutions of the pristine state were in place in several great centers. Capitals participating in the innovative processes were Huari and Tiahuanaco (Chapter 37, this volume), and since the spectacular discoveries at Sipan, the Moche centers as well, especially the Huaca del Sol/Huaca de la Luna site (see Chapter 36, this volume, for a new perspective on Moche culture)

By AD 400 or so, agriculture and sedentism had been established for several millennia. Technology had improved in every domain, from farming to architecture to metallurgy (South America's bronze age began a century or two later). Population had grown immensely, both in total numbers, and in the percentage concentrated in central settlements; leaders organized huge amounts of labor to build great pyramids and vast irrigation systems; enormous wealth was being created, including products of fine artists and craftsmen; warfare was increasingly important, with a warrior cast clearly represented in a great deal of art; and social inequality, as indicated by mortuary remains, ranged from astonishingly wealthy lords to commoners and perhaps even slaves with nothing. It seemed that all the antecedents were in place for the next step: state government, empires and great cities – Andean civilization.

This simple and convincing scenario, locating the origins of Central Andean civilization in the mid-first millennium AD, is being shaken to its foundations by a new proposition according to which Peru's first cities and state government appeared thousands of years earlier – perhaps as far back as the Late Pre-ceramic, (or Late Archaic), or the Initial Period of pottery respectively (cal. 3000 to 2100 BP, and cal 2100 to 1000 BP, according to Pozorski and Pozorski, Chapter 31). Such an early origin for Andean civilization was first proposed, rather cautiously, by Shelia and Thomas Pozorski (1992, 1994, and this volume), who placed the onset of state government in the Initial Period. More recently, and more boldly, Ruth Shady (1999, 2003, 2004, 2005, 2006) has recognized urbanism, as well as state organization, in the even earlier Late Pre-ceramic Period. Jonathan Haas and Winifred Creamer (2004, 2006) followed with similar claims based on related research. The hearth for this precocious cultural evolution is located on the north-central coast of Peru, from the Huaura Valley north to the Casma Valley, and during the Initial Period, a somewhat larger area, reaching south to the Rimac and Lurin Valleys, and north to the Moche Valley, and possibly farther. In this explanation of civilization, diffusion is again popular, from a single precocious central coastal Peruvian hearth.

Should those social formations receive the label “civilization”? In terms of former thinking, Peru's Late Pre-ceramic represents the transition from hunting and gathering to agriculture – the “Neolithic Revolution” of V. Gordon Childe (1936, 1942), or in terms of the currently popular sequence of stages, change from “hunting and gathering bands,” to “autonomous village society” (Flannery 2002). If Shady and the Pozorskis are correct, Peruvian civilization materialized directly out of “hunting and gathering bands,” apparently skipping “autonomous village society,” “rank society,” and “chiefdoms.” If such were the case, the popular sequence of evolutionary stages is discredited.

To evaluate Late Pre-ceramic and/or Initial Period origins of state and city we must examine the archaeological record as well as the criteria employed to identify city and state in that record. Of course, we do not want to disqualify a classification on the basis of some technical criteria, such as writing, since nothing would be learned from such an exclusionary exercise. We concur with Drennan (Chapter 21), who in his discussion of Colombian chiefdoms affirms that evolutionary stages should be defined broadly enough for archaeology to learn something from comparative analyses:

Some argument has focused on whether... societies were chiefdoms or not, but ... this depends on taking quite a narrow definition of “chiefdom” as a very specific societal type with a redistributive economy and a particular kind of kinship system... “[C]hiefdom”.. [may be] used in a broader sense to refer to any society that encompasses more than a single local community and has some degree of institutionalized social inequality.

However, Makowski (Chapter 32) worries that Shady’s use of the concept “urban” to classify Late Pre-ceramic settlements may be so broad and inclusive that the category is rendered meaningless. Nothing can be learned comparing cultural phenomena that are essentially different.

Pozorski and Pozorski (Chapter 31) state that what compels them to classify Moxeque, Huaca de los Reyes, and other Initial Period monumental centers as state capitals is the immense amount of labor employed in their construction, that involved vast volumes of construction in single building epochs; the planning required, with key principles followed for centuries, even in different sites; repetition of the same architectural module(s) as though emblematic of authority; different architectural forms for special functions (temple, storage, elite residence/palace); economic symbiosis between coastal and valley settlements; and several large centers integrated into the same political unit. Shady (2006 and personal communications), who has excavated tirelessly for a decade at the Supe Valley site of Caral adds important complementary features for the antecedent Late Pre-ceramic Period. She describes a Supe Valley-wide settlement hierarchy of 18 sites with size modes at 55-80 ha, 30-45 ha, 15-25 ha, 5-10 ha, as well as smaller sites. Spatial distribution includes coastal and inland sites, the latter located to maximize valley-bottom irrigation, in settlement enclaves or clusters, with formal routes for communication between them. Caral itself sprawls over 66 ha, with 7 great mounds around a vast open space. Residential architecture is limited to a modest sector to the northwest of the great plaza, organized into hamlet-like, multi-family units, that may have housed as many as 5,000 persons (Shady, personal communication). Additionally, most pyramids have a building compound behind them, which seems to be elite quarters for people in charge of the mound.

Shady interprets Caral’s spatial organization as indicative of division into two moieties, with a great temple/sunken court complex in each half. She argues that net bags containing construction fill, as well as the diversity of foods affirm tribute collection, and even some degree of occupational specialization. Buildings, orientations, drainage features, and other aspects of the built environment suggest the existence of architects, astronomers, and mathematicians, as well as workers and construction overseers. However, the greatest domain of specialization was probably in religion, with priests and other ritual specialists providing a rich ceremonial life within the “city”.

As Makowski (Chapter 32) points out, there have been several approaches to urbanism and state government among archaeologists. One emphasizes the consolidation of administrative institutions into a hierarchical political organization that worked itself out in the spatial order of settlements surrounding the primary capital, and defining its territory. A set of secondary administrative centers with lesser officials was located around the capital, each of them circled by tertiary towns, until the smallest settlements, with no administrative functions were distributed between the lowest order villages where officials were in residence. Sharp distinction was drawn between ceremonial centers that were not top administrative nodes, and authentic state capitals, and even ceremonial centers with sizable resident populations that had very few if any regional administrative functions.

The Supe Valley has a Late Pre-ceramic settlement hierarchy that might correlate with administrative structure, but it is not rank ordered as one would expect of an administra-

tive state, with one capital, surrounded by a countryside characterized by a larger number of secondary administrative centers, etc. In fact, the Supe Valley had three first-order settlements, in the 55-80 ha size range. Either the valley was divided among three polities, each with its primary administrative capital, or the organization was not like that known to theorists of the administrative state and their planned urban capitals. The latter may be an evolutionary possibility at the limits of ethnographic and archaeological analogy: it is quite reasonable to think that forms of society existed in the past that did not survive into ethnographic times. This is a domain in which field data-generated model-building archaeological theory must begin to flourish.

A second vision of urbanism understands the city as functionally differentiated internally, “a permanent dwelling site of managers, merchants, craftsmen, and the military” (Makowski, Chapter 32, this volume). Although one can infer that immense monuments imply architects, masons, overseers, and workers, as well as priests, accountants, tribute collectors and other specialists, there is little direct evidence at Caral for occupational, or even status, difference, such as in mortuary treatment. There is no evidence for a military specialization, or even for organized conflict. Technology is little differentiated, with no significant wealth, and only a modest amount of trade beyond the immediate valley. Householders could have produced all the material culture excavated to date.

Makowski (Chapter 32) offers a third image of the city, Marxist, in which social class, property, and the apparatus of state oppression are most diagnostic. But if status differences can hardly be detected at Caral – except perhaps for housing (with that behind pyramid compounds belonging to elites, and the northwest collection of hamlets belonging to the rest of the inhabitants) then an oppressive state supporting the interests of the wealthy class seems unlikely.

In summary, Caral of the Late Pre-ceramic, and Moxeque, Sechin Alto, Huaca de los Reyes, etc. of the Initial Period are not irrefutable examples of urbanism or state government. On the other hand, they are astonishingly great centers, that required so much labor, organization of labor, planning of the monuments, etc. that they must not be discounted as states either. Of course, each had a thousand years or so for construction, so perhaps such immense centers express long-term accumulation in a context of very little social and cosmological change. Pozorski and Pozorski (this volume) note that pyramid centers of the north-central and north coast were built in massive construction phases, while those of the central coast were built in many, modest additions. However, as a close reading of Burger’s (this volume) discussion of Chavin shows, such inferences may be more in the eye of the beholder, and mind of the archaeologist, than in the archaeological record.

The issue of the origins of Central Andean civilization have not been resolved, but the colossal centers of Peru’s Late Pre-ceramic and Initial Period show that the currently popular stages of unilinear evolution do not adequately represent the range of evolutionary trajectories that characterize South America’s past. Indeed, discussion of the paradoxical cases of pre-Hispanic urbanism on the continent should also examine the Sierra Nevada de Santa Marta ruins (Oyuela-Caycedo, this volume). There is much yet to be learned about the processes of civilization, and classification alone resolves nothing. What is needed is field work, especially large excavations and thorough analyses, coupled with open-minded theory-building, unfettered by assumptions about cultural diffusion, environmental limitations, ideal culture types, and unilinear evolution. Indeed, it may be that paradoxical complexity in early prehistoric South America – Caral, Moxeque, the cerritos de indios, Marajoara, and Ciudad Perdida – are not as contrary as we imagine. Rather, it may be that anthropological ethnography, upon which cultural evolution is founded, is bereft of

descriptions of middle range societies that constructed impressive monuments. But archaeology has numerous examples, from Stonehenge and Avebury, to the Maltese temples, and even the Hopewell Earthworks and Cahokia's Monks Mound. Peru's very early, complex societies demand much more archaeological analysis and description, involving accurate internal chronology, before they will be adequately understood.

Heritage, Preservation, Ethics, and the Practice of Archaeology in South America

Just as the chapters in the *HSAA* and the spaces they describe are heavily influenced by the modern nations into which South America (and the rest of the world) is divided, so the ethics and practice of archaeology, as well as patrimonial preservation and issues of heritage are shaped by nations. Sadly, neither the colonial empires nor South America's republican states have been particularly good stewards of archaeological patrimony or of indigenous cultural heritage. Indeed, the goals of nationalism may often conflict with preservation and heritage development.

Virtually every author discussing the practice of archaeology in South America (in this volume) speaks of the racism, discrimination against Indians, and minimization of indigenous cultural heritage that has characterized most of the history of the post-conquest New World. Plundering temples and looting graves was considered the right of the European conquerors, and in spite of laws protecting cultural patrimony throughout modern South America, pillaging continues wherever valuable artifacts may be found. Collectors of art and artifacts establish private museums and receive acclaim as philanthropists and patriots.

Change is in progress throughout South America, but not without pain and resistance. At present, there seems to be one primary direction, nationalism that seeks to merge indigenous and Hispanic identities into one, new, national being. As Cristóbal Gnecco (Chapter 56) points out, this identity admits little dissent—Afro-South Americans, persons with an indigenous identity, women, and others. But more and more the archaeological past is considered vital in the construction of national identity in South American countries. In some nations, such as Brazil, at least as described by Bastos and Funari (Chapter 58), the process and result to date seem enlightened and directed toward success. They may serve as examples for other nations.

Not surprisingly, in many cases the past that is claimed for national identity is sanitized and romanticized to European standards, as the narrative Benavides (Chapter 53) and Scarborough (Chapter 55) describe for Ecuador's Cochasquí and Bolivia's Tiwanaku, respectively. Although the chapters in Part X of this volume are written by national scholars, the *HSAA* lacks voices of indigenous leaders, who are also appropriating archaeology for their ends. How is the material heritage of prehistory deployed when creole Europeans are not the primary consumers? Is the past still subjected to Eurocentric ideas of what is good and bad? Are dissident voices silenced?

After many generations of marginalization, South American archaeology appears to be making more and greater contributions to national image and identity construction. It seems to provide one means of mediating cultural and racial disparities. Successes are significant, and apparently growing. But tragically, success in protecting South America's archaeological patrimony is less triumphant. Looters, who may be better financed and work much faster than professional archaeologists, often make the finest, most exceptional, and impressive archaeological discoveries. Examples include the Peruvian site of Loma Negra, in Piura, where an undetermined number of richly furnished graves were looted in the early 1960s. Subsequent studies by archaeologists led to the definition of the

Vicús ceramic style. In Colombia's Cauca Valley, the Malagana site was looted in 1992, with an estimated 200 kg of gold artifacts taken, surely the grandest haul since the original conquistadores. Spectacular Pucara Provincial weavings, some of the technically and iconographically finest in the Central Andes, are sometimes mistakenly called "Early Tiwanaku" (see for example the "Gateway Tunic" in Young-Sánchez 2004: fig. 2.26a). Unfortunately, they are without archaeological contexts, existing only in private collections, none having been discovered by archaeologists.

Occasionally, archaeologists manage to wrest a great discovery from the grave robbers before it is too late. The Paracas cemeteries were first excavated by looters, but appropriated by Julio C. Tello and his museum staff. More recently, the fabulous Sipán site was also excavated first by looters, who removed a royal burial before archaeologists managed to intercede (see Chapter 36, this volume). Indeed, in more cases than we will ever know, the finest tombs, ceramics, sculptures, and other artifacts are discovered by looters and sold to collectors. Trafficking in antiquities pays handsomely, and entire archaeological cultures are known only from plundered remains. Marketing by eBay[®], and similar web-based sales means that even minor objects can be advertised broadly to get the best price. Archaeological sites and museums are robbed of prize pieces, sometimes at gunpoint. Looters are armed and dangerous.

At least as devastating as looting and antiquities trafficking, cultural resources are destroyed by development, whether urban expansion, flooding behind dams, highway construction, irrigation programs, or other earth-moving operations. In spite of conservation laws, vast quantities of archaeological remains are destroyed annually. It is our impression that in Peru, which we know best, more archaeological sites have been destroyed since World War II than in the first 400 years following the Spanish Conquest. And destruction is accelerating, whether caused by outright looting, economic development (e.g., agricultural expansion, irrigation projects) or population resettlement. Heavy machinery is the most common means, leveling sites in a matter of hours. In too many cases, national governments turn a blind eye to the destruction, apparently in the name of progress. And as Higuera (Chapter 54, this volume) points out, planning for heritage has not been a priority. Often, archaeological patrimony is not even considered a resource, unless it is already drawing tourist dollars.

It may be beyond the capacity of some South American nations to defend archaeological patrimony more effectively than they have, but it is tragic that international cooperation and multinational programs are not more common, as in Egypt when the Aswan Dam was in construction. In some cases, international cooperation has scored astonishing successes. In a \$1,400,000 sting, FBI agents in Philadelphia seized the spectacular gold back flap from Sipán's royal grave, excavated by robbers and traffickers. When archaeologists at the University of Pennsylvania Museum identified the piece and confirmed that it had been exported after a USA-Peru bi-national agreement, the artifact was confiscated, and returned to Peruvian authorities. But successful international collaboration is not the rule. Until the mid twentieth century, most international archaeologists working in South America were agents of museums that were actively collecting antiquities, with the result that suspicion and xenophobia are deeply seated, as evidenced by the current controversy between Peru and Yale University over the repatriation of the collections excavated almost a century ago by Hiram Bingham at Machu Picchu. Professional archaeologists the world over hope that struggles over antiquities, that hark back to the era of European imperialism, will be quickly resolved by the repatriation of the artifacts (see Lubow 2007) or cooperative agreements that benefit the country of origin as well as the current curators.

It is most unfortunate that various South American cultural or archaeological institutions are more likely to treat visiting archaeologists as predators who must be constrained than as allies in the war against looters and developers – a war the archaeologists are losing. But these attitudes will change – and must change – because, over the past century, the goals and ethics of archaeologists have changed. The Society of American Archaeology [Note 3], to which international, as well as most national archaeologist working in South America, belong, has promulgated a strong and binding set of ethics, plus a Register of Professional Archaeologists [Note 4] with an even more stringent code of conduct, and within which grievances may be adjudicated. Exceptional cases to the contrary notwithstanding, the increasing number of bi-national and international collaborative symposia at the SAA meetings concerning both prehistoric problems and contemporary issues and a host of socially engaged archaeology publications clearly indicate that we have entered a new and more responsible era. Hopefully, there is a future for archaeological patrimony, but only *if* archaeologists and heritage institutions—national and international—put aside differences and cooperate to protect and preserve.

IN CONCLUSION

The *Handbook of South American Archaeology* provides a new, continental collection of current archaeological information. Hopefully it will promote more continentally framed thinking and teaching about the past. We also hope that the *HSAA* helps readers to appreciate the growing importance of archaeology for identity formation in post-colonial nations, bridging the racial and ethnic gaps that characterize most New World countries. Neither the colonial empires nor modern South American nations have good track records in the preservation of archaeological patrimony. While this is changing, if the archaeological record is to be adequately protected from looters and developers, a new level of vigilance and prevention is required. This is going to require international cooperation, and international archaeologists stand ready to work together with South American nationals and institutions to achieve the goal. But they must be invited.

Heritage development—the most effective preservation strategy—requires long-term plans and regional perspectives, which have not been achieved by the modern countries of South America. But as Higuera (Chapter 54, this volume) shows, elsewhere in the world success in heritage programs has usually involved many agencies, private and public, national and international. UNESCO and similar world-wide organizations have been the inspiration behind many successful heritage programs, not just in South America. Again, greater cooperation and more insightful planning, at levels from local to international are required. In the meantime, archaeologists are losing the battle against looters and developers. The prehistoric cultural resources of South America are being destroyed at an ever-increasing rate.

Decades of recent archaeological research all across South America, including some in places extremely remote by modern standards, have produced an immense quantity of new information about continental prehistory. The South American past is full of surprises. Many problems that dominated the research arena a few decades ago now seem passé. The Clovis Barrier has been shattered, and archaeologists are gaining a pretty good idea of when South America, the last continental land mass to be inhabited, was first peopled. The role of Amazonia, and the Lathrap-Meggers controversy, is superseded by historical ecology that has cast out deterministic environmental limitations and demonstrated how

societal complexity develops without a village farming stage. Humans domesticated local environments, not species of plants and animals.

The appearance of early and precocious political organization and monumental settlements on the north central coast of Peru brings surprising new understandings – and confusions – to the study of South American civilization. Monumental mounds of equal antiquity in Brazil and Uruguay confound traditional ideas about cultural development – as do Chinchorro mummies and Sambaqui shell mounds. These and many other new South American understandings challenge archaeology. Currently popular cultural evolutionism, that defines social evolution as transformational change from one stage of complexity to the next—and limits development to idealized stages in an idealized sequence: “hunting and gathering band,” “autonomous village society,” “rank society,” “chiefdom,” “archaic state,” and “empire”—fails to recognize the variability and complexity apparent in South America’s past. While cultural evolution is the master theory of anthropological archaeology, it requires significant new theorizing. South Americanists will contribute to this theory development, and to corresponding field-based knowledge, as they have in the past. The legacy of the *Handbook of South American Indians*, and its editor, Julian H. Steward, is a great responsibility.

NOTES

1. Navarrete (Chapter 23, this volume) continues to include Venezuelan Taima Taima as a Pleistocene site, although some evaluators question it.
2. See also http://www.sfu.museum/journey/05p_secondary/transcripts/fladmark.php
3. See <http://www.saa.org/publications/saabulletin/14-3/saa9.html>
4. See <http://www.rpanet.org/>

REFERENCES

- Balée, William (ed.), 1998, *Advances in Historical Ecology*. Columbia University Press, New York.
- _____ and Clark Erickson (eds.), 2006, *Time and Complexity in Historical Ecology: Studies in the Neotropical Lowlands*. Columbia University Press, New York.
- Bennett, Wendell C., 1946, The Central Andes. In *Handbook of South American Indians, Volume 2, The Andean Civilizations*, edited by Julian H. Steward, pp. 61-147. Bulletin 143. Smithsonian Institution, Washington, D.C.
- Blanton, Richard E., Gary M. Feinman, Stephen A. Kowalewski, and Peter N. Peregrine, 1996, A dual-processual theory for the evolution of Mesoamerican civilization. *Current Anthropology* 37: 1-14.
- Childe, V. Gordon, 1936, *Man Makes Himself*. Watts, London.
- _____, 1942, *What Happened in History*. Penguin, Harmondsworth.
- Crumley, Carole L. (ed.), 1994, *Historical Ecology: Cultural Knowledge and Changing Landscapes*. School of American Research Press, Santa Fe.
- Denevan, William M., 1966, *The Aboriginal Cultural Geography of the Llanos de Mojos of Bolivia*. Ibero Americana, No. 48. University of California Press, Berkeley.
- _____, 1992, The Pristine Myth: the landscape of the Americas in 1492. *Annals of the Association of American Geographers* 82: 369-385.
- Dillehay, Tom D., 2000, *The Settlement of the Americas*. Basic Books, New York.
- Feinman, Gary M., 2001, Mesoamerican political complexity: the corporate-network dimension. In *From Leaders to Rulers*, edited by Jonathan Haas, pp. 151-176. Kluwer Academic/ Plenum Publishers, New York.
- Fladmark, Knut R., Jonathan C. Driver, and Diana Alexander, 1988, The Paleoindian component at Charlie Lake Cave, British Columbia. *American Antiquity* 53: 371-384.
- Flannery, Kent V. (ed.), 1976, *The Early Mesoamerican Village*. Academic Press, New York,

- _____, 2002, Prehistoric social evolution. In *Archaeology: Original Readings in Method and Practice*, edited by Peter N. Peregrine, Carol R. Ember, and Melvin Ember, pp. 225-244. Prentice Hall, Upper Saddle River, New Jersey.
- Fried, Morton H., 1967, *The Evolution of Political Society: An Essay in Political Anthropology*. Random House, New York.
- Haas, Jonathan and Winifred Creamer, 2004, Cultural transformations in the Central Andean Late Archaic. In *Andean Archaeology*, edited by Helaine Silverman, pp. 35-51. Blackwell Publishing, Malden, MA.
- _____, and Winifred Creamer, 2006, Crucible of Andean Civilization. *Current Anthropology* 47: 745-775.
- Hosler, Dorothy and Andrew Macfarlane, 1996, Copper sources, metal production, and metals trade in Late Postclassic Mesoamerica. *Science* 273: 1819-1824.
- Larco Hoyle, Rafael, 1939, *Los Cupisniques*. La Crónica y Veledades, Lima.
- Lathrap, Donald W., 1970, *The Upper Amazon*. Praeger, New York.
- Lubow, Arthur, 2007, The possessed: should Yale University return its relics of Machu Picchu? And who in Peru would actually benefit if it does? *The New York Times Magazine*, 24 June 2007, Section 6: 42-49, 68, 82-83.
- Marcos, Jorge G., 1995, El Mullo y el Pututo: la articulacion de la ideologia y el tráfico a larga distancia en la formación del estado Huancavilca. In *Primer Encuentro de Investigadores de la Costa Ecuatoriana en Europa*, edited by Silvia G. Alvarez, Aurelio Alvarez, Carmen Fauria, and Jorge G. Marcos, pp. 97-142. Abya-Yala, Quito.
- Meggers, Betty J., 1957, Environment and culture in the Amazon Basin: an appraisal of the theory of environmental limitations. In *Studies in Human Ecology, Social Science Monograph, Vol. 3*, edited by Angel Palerm, pp. 71-89. The Pan American Union, Washington D.C.
- _____, 1971, *Amazonia: Man and Culture in a Counterfeit Paradise*. Aldine, Chicago.
- _____, and Clifford Evans, 1961, An experimental formulation of horizon styles in the tropical forest area of South America. In *Essays in Pre-Columbian Art and Archaeology*, edited by Samuel K. Lothrop et al., pp. 372-388. Harvard University Press, Cambridge, MA.
- Neves, Walter, Rolando Gonzalez-Jose, Mark Hubbes, Renato Kipnis, Astolfo Araujo, and Oldemar Blasi, 2005, Early Holocene human skeletal remains from Cerca Grande, Lagoa Santa, Central Brazil, and the origins of the first Americans. *World Archaeology* 36: 479-501.
- Posnansky, Arthur, 1914, *Una Metrópoli Prehistórica en America del Sur. Eine Praehistorische Metropole in Südamerika*. Dietrich Reimer, Berlin.
- Pozorski, Shelia, and Thomas Pozorski, 1992, Early civilization in the Casma Valley, Peru. *Antiquity* 66: 845-870.
- _____, and Thomas Pozorski, 1994, Early Andean cities. *Scientific American* 270 (6): 66-72.
- Redman, Charles, 1978, *The Rise of Civilization: From Early Farmers to Urban Society in the Ancient Near East*. W. H. Freeman and Company, San Francisco.
- Roosevelt, Anna C., John Douglas, and Linda Brown, 2002, The migrations and adaptations of the first Americans: Clovis and Pre-Clovis viewed from South America. In *The First Americans*, edited by Nina G. Jablonski, pp. 159-236. Memoirs of the California Academy of Sciences, No. 27, San Francisco.
- _____, R. A. Housley, M. Imazio da Silveira, S. Maranca, and R. Johnson, 1991, Eighth millennium pottery from a prehistoric shell midden in the Brazilian Amazon. *Science* 254: 1621-1624.
- _____, M. Llima da Costa, C. Lopes Machado, M. Michab, N. Mercier, H. Valladas, J. Feathers, W. Barnett, M. Imazio da Silveira, A. Henderson, J. Silva, B. Chernoff, D. S. Reese, J. A. Holman, N. Toth, and K. Schick, 1996, Paleoindian cave dwellers in the Amazon: the peopling of the Americas. *Science* 272: 373-384.
- Sahlins, Marshall and Elman R. Service (eds.), 1960, *Evolution and Culture*. University of Michigan Press, Ann Arbor.
- Sauer, Carl O., 1952, *Agricultural Origins and Dispersals*. American Geographical Society, New York.
- Schurr, Theodore G., 2004a, Molecular genetic diversity in Siberians and Native Americans suggests an early colonization of the New World. In *Entering America*, edited by David B. Madsen, pp. 187-238. University of Utah Press, Salt Lake City.
- _____, 2004b, The peopling of the New World: perspectives from molecular anthropology. *Annual Review of Anthropology*, pp. 551-583. Annual Reviews Inc., Palo Alto.
- Service, Elman R., 1962, *Primitive Social Organization: An Evolutionary Perspective*. Random House, New York.
- _____, 1971, *Cultural Evolutionism: Theory in Practice*. Holt, Rinehart and Winston, New York.

- Shady Solis, Ruth, 1999, Los orígenes de la civilización y la formación del estado en el Perú: las evidencias arqueológicas de Caral - Supe (primera parte). *Boletín Museo de Arqueología y Antropología, Centro Cultural de la Universidad Nacional Mayor de San Marcos* 2: 2-4.
- , 2003, *Caral, Supe: La Civilización Más Antigua de América*. Instituto Nacional de Cultura, Lima.
- , 2004, *Caral: La Ciudad del Fuego Sagrado/The City of the Sacred Fire*. Centurs Sab, Lima.
- , 2005, Caral-Supe-Perú. In *La Civilización de Caral-Supe: 5000 Años de Identidad Cultural en el Perú*. Instituto Nacional de Cultura/Proyecto Especial Arqueológico Caral-Supe, Lima.
- , 2006, America's first city? The case of Late Archaic Caral. In *Andean Archaeology III: North and South*, edited by William H. Isbell and Helaine Silverman, pp. 28-66. Kluwer Academic Publishing Co., New York and London.
- Sokolowski, Robert, 2000, *Introduction to Phenomenology*. Cambridge University Press, Cambridge and New York.
- Stahl, Peter W., 2002, Paradigms in paradise: revising standard Amazonian prehistory. *Review of Anthropology* 23: 39-50.
- (ed.), 1995, *Archaeology in the Lowland American Tropics: Current Analytical Methods and Applications*. Cambridge University Press, Cambridge, New York.
- Stanish, Charles and Kevin J. Haley, 2005, Power, fairness, and architecture: modelling early chiefdom development in the Central Andes. In *Foundations of Power in the Prehispanic Andes*, edited by Kevin J. Vaughn, Dennis Ogburn, and Christine A. Conlee, pp. 53-70. Anthropological Papers of the American Anthropological Association, Number 14, Arlington, VA.
- Tello, Julio C., 1943, Discovery of the Chavin culture in Peru. *American Antiquity* 1: 135-160.
- , 1960, *Chavín: Cultura Matriz de la Civilización Andina*. Publicación Antropológica del Archivo "Julio C. Tello" de la Universidad Nacional Mayor de San Marcos, Lima.
- Trigger, Bruce G., 2003, *Understanding Early Civilizations: A Comparative Study*. Cambridge University Press, Cambridge.
- Young-Sánchez, Margaret, 2004, Tapestry Tunic. In *Tiwanaku: Ancestors of the Inca (with essays by Sergio J. Chávez, Nicole C. Couture, Paul S. Goldstein, Alan Kolata, Mario A Rivera)*, edited by Margaret Young-Sánchez, pp. 46-49. Denver Art Museum and University of Nebraska Press, Lincoln and London.

Index

- Abary, 284
- Abeja, 204–5, 211
- Abrigo das Caretas, 1009, 1020
- Abrigo do Sol, 198
- Accelerator mass spectrometry (AMS) dating
 - of Andes sites, 109, 110, 112
 - of Chachapoya sites, 907
 - of khipu, 837
- Aceramic sites, 609
- Acha, 38–39, 46, 135, 1144
- Achiote, 109
- Achira, 105, 110, 112, 113, 116, 118, 464, 467, 470, 472
- Achu, 196
- Achuar, 230
- Acre, 170
- Açutuba, 205, 365, 952, 953
- Adaptive radiation, 136–37, 187
- Aeródromo, 450
- Aeropuerto, 205
- Agricultural regression, 193
- Agriculture. *See also* Horticulture; Irrigation
 - agriculture; Raised fields; Ridged fields; Slash-and-burn agriculture; Terracing; specific crops
 - at Alto Ramírez sites, 964–65
 - in Amazonia, 185–212
 - in the Andes, 105–19
 - at Argentinian sites, 589
 - in the Central Andes, 98–99, 100–101, 771–72
 - in Guianas sites, 283–84
 - at Llanos de Mojos, 930–32, 935
 - at Monagrillo, 85–86
 - origins of farming, 1144–45
 - Pleistocene, 38–40
 - at Tiwanaku sites, 748
 - at Venezuelan sites, 436
- Agroforestry, 175–77
- Agua Blanca, 445, 446, 516–18
- Aguada, 592, 593–96, 993
- Aguadulce, 202
- Aguas Calientes, 1076, 1084
- Agüerito, 209–10
- Ají, 537, 771
- Akapana, 746, 747–48, 749, 1048, 1049, 1090
- Akapana East, 1048–49
- Akokwa, 300
- Alaka, 283
- Alamito, 591, 592, 593
- Alausí, 467, 475
- Albarradas, 116
- Algarrobal de Moro, 789, 792
- Algarrobo Culture Complex, 984, 986–88, 993, 996
- Alpacas. *See* Camelids
- Alpha diversity, 159
- Alterity, 1105–6, 1107
- Altiplano, 116–18, 934–35, 963
- Altiplano Mode Model, 983–84
- Altiplano Tradition, 984, 985
- Altiplano Wankarani, 965
- Alto Magdalena, 383–87, 388, 389, 390, 394, 397, 398
- Alto Ramírez, 963, 964–66, 967f, 973, 974
- Alto Salaverry, 609
- Amantaní, 548
- Amapá, 229, 231, 279, 283, 293, 294, 297, 298, 300, 1005
- Amaranth, 107, 382
- Amazonia, 157–79, 193–94, 941–58, 1140
 - agriculture in, 185–212
 - biodiversity of, 158–59, 177–78
 - central, 952–53
 - culture area, language group, world system, 943–48

- Amazonia (*cont.*)
 elements of landscape, 165–77
 historical morphology, 948–49
 inhabitant impact on nature, 164–65
 role in cultural evolution, 1146–48
 southern periphery, 953–58
- Amazonian Dark Earth (ADE), 163, 166, 171, 178, 187, 189, 190f, 198, 205, 210, 1140, 1148. *See also* Anthropogenic dark earths; Archaeological dark earth
- Amazonian floodplain, 359–72. *See also* Várzea
 chiefdoms of, 371–72
 chronological and regional patterns, 362–64
 cultural chronologies and social change, 364–71
 description of, 360–62
- Amazon region
 of Brazil, 1005–25 (*see also* Maracá urns)
 of Ecuador, 264–65
- Amazons (warrior women), 292
- Ambato Valley, 592–93
- American Anthropologist, 9
- American Council of Learned Societies, 7
- American Museum of Natural History, 1108
- Americas and Civilization, *The* (Ribeiro), 13
- Amotape, 148, 150, 153, 1144
- Amotape-Siche Complex, 890, 891
- Ananatuba, 364, 366
- Ancestor veneration
 in Andean region, 649, 1027–43
 animacy and generative capacity, 1032–33
 background, 1029–30
 at Camutins, 348, 350, 354
 in Central Andean region, 649
 Chimú and, 786, 798, 1036, 1038, 1042
 concealment and display, 1040–41
 image forms, 1030–31
 interactive ceremonies, 1034–39
 possession of figures, 1031–32
 in sambaqui societies, 323
 at Titicaca basin sites, 547–48, 549, 555, 556
- Ancient Andean Life* (Hewett), 11
- Ancient South Americans* (Jennings), 14
- Ancón, 147, 614
- Ancón-Chillón, 100, 148, 768
- Andean urbanism, 633–53, 1141
 axiomatic definitions, 636–38
 comparative definitions, 635
 functional definitions, 638
 new perspectives on, 639–50
 pragmatic definitions, 636
- Andes, 14–15, 451–54
 agriculture in, 105–19
 ancestor veneration in, 649, 1027–43
 central (*see* Central Andes)
 cloud forest culture of (*see* Chachapoyas)
 crops of, 105–9
 eastern slopes of, 935–36
- Andes (*cont.*)
 foraging societies in (*see* High elevation foraging societies)
 Inca domination, in southern, 845–60
 migration in, 671–78
 north, 8, 15
 south-central, 980f, 983–88
- Andoque, 205
- Andrade, Mário de, 1128
- Anemia, 47
- Animal domestication, 121–29
- Animal sacrifice, 123, 478, 1031, 1036, 1041
- Animas Altas, 571
- Anthropogenic burning, 41, 165–66, 178
- Anthropogenic dark earths (ADEs), 364–65, 366, 369, 372, 957. *See also* Amazonian Dark Earth; Archaeological dark earth
- Anthropogenic forest islands, 169
- Anthropogenic landscapes
 of Llanos de Mojos, 933–34, 936–37
 of northern Colombia, 405–24
- Anthropomorphic Mythical Being (AMB), 574f, 578
- Antisuyu, 825
- Antofagasta, 968
- Antofagasta de la Sierra, 112
- Antonio de Sucre, José, 1092
- Aparia, 950
- Apêtê, 169, 189
- Apostadero, 437, 440
- Apure, 445
- Aqueducts, 556
- Aracacua, 198–206, 211, 212
- Araukí, 294
- Araucanians, 8
- Araquín, 445–46
- Araquinoid Tradition
 at Amazonian floodplain sites, 370
 earthworks of, 231
 at Guianas sites, 286–93, 300–301
 mound building in, 303–17
 people of, 217
 at Venezuelan sites, 432, 437, 438, 439, 440
- Arawakan-Maipuran linguistic stock, 185
- Arawak linguistic group, 11, 367, 369, 371, 932, 936, 943–48, 949f, 953, 954, 956, 1146
- Archaeological dark earth (ADE), 952, 953. *See also* Amazonian Dark Earth; Anthropogenic dark earths
- Archaeological Museum of San Marcos National University, 683
- Archaeological silence (*silencio arqueológico*), 98, 136
- Archaic state, 1139, 1148, 1155
- Area Research* (Steward), 16–17
- Area studies, 16–19
- Arena Blanca, 563, 569–70
- Arenillas, 468

- Argentina, 981, 982, 983, 985, 988, 990–91,
 993–95, 1142–43, 1145
 animal domestication in, 123, 124, 127, 128, 129
 Middle Horizon in, 732, 738
 northwestern (see Northwestern Argentina)
 pampas of (see Pampas)
 plant domestication in, 112
 Arica, 741, 971
 Aristé, 226, 293–98, 300, 371
 Armadillos, 33, 237, 244, 246, 249, 250, 470
 Armatambo, 648
 Aroa, 445
 Arrowroot, 85, 105, 110, 113, 118, 202, 211, 464,
 470, 1145, 1147
 Arroyo Feo Cave, 65
 Arroyo Seco-2, 236–37, 245–46, 247
 Asana, 133, 134, 135, 138, 139, 140–41, 908
 Asiruni, 547
 Aspero, 609, 611, 643
 Association of Descendants of the Charrua Nation
 (ADENCH), 1124
 Atacama Desert, 736, 738, 819, 963, 968, 970
 ecological triad of, 45–47
 Inca domination in, 973
 migration and, 674, 675, 676–77
 Atacameño, 985, 995
 Atahualpa, 825, 858, 1065, 1067, 1068
 Aterros, 247, 1140. *See also* Mounds
 Atoca-1, 968
 Audiencias, 786, 787, 791, 796
 Auditory exostosis, 47–48
 Austria, 1078–79
 Autonomous village societies, 188, 1139,
 1140–41, 1144–45, 1148, 1149, 1155
 Avestruz, 245
 Avic, 891
 Avocados, 109, 116, 423, 607, 610, 787
 Awala, 230
 Ayacucho, 113, 125, 128–29, 698
 Ayacucho Valley, 138, 139–40, 141, 745, 752
 Ayalán, 123
 Ayamachay, 125
 Ayangue, 895
 Ayarmaca, 814
 Ayllus, 549, 551, 557, 576–77
 Aymara, 549, 1098, 1099
 Azángaro, 648, 753
 Azapa, 964, 965, 966, 968, 970, 972
 Aztecs, 121

 Bagres, 251
 Bagua, 894, 895, 896, 898
 Bahía, 15, 490, 496, 497f, 500
 Bahía Buena, 70
 Bahía Colorada, 70
 Bahía Gigante, 496
 Bahía Inútil, 70

 Bahía Seca, 620, 621
 Bajo Caroní, 433
 Bajo Chinchá, 646
 Balboa, Cabello, 519
 Balconera Wall, 734, 748
 Baldus, Helbert, 1128
 Balsas teosinte, 107
 Bananal do Pocinho, 1009, 1010f
 Bananas, 1008
 Bandelier, 784
 Bands, 9, 12, 160, 1139, 1148, 1149, 1155
 Bandurria, 611
 Baño Nuevo, 60, 61, 66, 71
 Barbakoeba, 288, 289, 292, 293, 298, 300, 303, 316
 Barcelona, 442
 Barinas, 445, 446
 Barlovento, 407
 Barrancas, 437, 439–40
 Barranco Complex, 266, 269
 Barrancoid Tradition, 185, 210, 1146
 at Amazonian floodplain sites, 367, 370
 earthworks of, 231
 at Guianas sites, 284, 287f
 mound building in, 303–17
 people of, 217
 at Venezuelan sites, 429, 432, 438, 440
 Barrancos, 265
 Basketry, 307, 967, 969, 981, 985
 Batán Grande, 762
 Batán Urqu, 742
 Bauré language, 936, 953
 Baures region, 173, 174
 Beans, 82, 107, 108, 110, 112, 116, 118, 140, 248,
 255, 382, 390, 423, 1145
 at Argentinian sites, 589
 at Chimú sites, 787
 at Ecuadorian sites, 462, 470, 472, 474, 534
 at northern Chilean sites, 965
 at Peruvian sites, 607, 610
 at Uruguayan sites, 1121
 Bears, 33
 Becerra, Francisco, 410
 Belém, 371, 951
 Belt ditches, 226–27, 228
 Benches, 1023, 1024
 Bennett, Wendell C., 8, 1090, 1092–93, 1108
 Bennett Monolith, 1089–1100
 discovery of, 1092–93
 first journey of, 1093–96
 return of, 1098–99
 second home of, 1096–97
 Beringa, 739, 1056
 Berlín Tradition, 453, 454
 Bermejo, 611
 Beta diversity, 159
 Betanci, 413
 Betijoque, 448, 451, 452f, 453

- Bifacial Tradition, 34, 1143
 Bioarchaeology, 671–78
 Biodiversity, 158–59, 177–78
 Biology, high elevation, 131–32
 Boca de Lopez, 118
 Boca Tacagua, 443
 Bogotá, 87, 125, 396
 Bohio del Diablo, 409
 Bohorques, Pedro, 858, 859
 Boleto turístico, 1084
 Bolivia, 981, 982, 983, 988, 990–91, 993–95
 animal domestication in, 123, 127
 Middle Horizon in, 732, 738
 patrimony and restitution in, 1089–1100
 Boni, 230
 Borono, 947
 Borrero, 83
 Bow and arrow, 251, 307
 Brazil
 Amazon region of, 1005–25
 campos of (*see* Campos)
 Cultural Heritage Management in, 1127–33
 sambaqui societies of coastal (*see* Sambaquis)
 Brazil nuts, 196, 1007–8
 Broad Spectrum Diet Revolution model, 191
 Bronze, 550, 593, 738
 Brownsberg groups, 292
 Bruhns, Karen Olsen, 14–15
 Brushed Subtradition, 660
 Buckleburg, 231, 286, 307–9, 310
 Bureau of American Ethnology (BAE),
 Smithsonian Institution, 6
 Burials. *See also* Cemeteries; Cremation;
 Grave goods; Primary burials; Secondary
 burials; Urns
 at Alto Magdalena, 383–85, 387, 397
 at Amazonian floodplain sites, 371
 at Amazonian sites, 168
 at Argentinian sites, 590
 at Atacama Desert, 675, 677, 736
 at Bahía, 496
 at Calima, 390, 391, 392
 at Camutins sites, 349–50
 at Cañari sites, 539–40
 at Caranqui sites, 531–32, 535
 at Cerro Mangote, 85
 at Chachapoya sites, 918–20
 at Challaubamba, 477
 at Chavín sites, 625, 626
 at Chimú sites, 786, 792, 797–98
 at Chinchorro sites, 50
 at Ecuadorian-Peruvian border sites, 899
 at Ecuadorian sites, 871, 878–79
 at Guangala, 499–500
 at Guayas Basin, 509
 at Guianas sites, 289, 292, 294
 at Ica Valley, 773
 at Inca sites, 519, 837
 at La Emerenciana, 892
 at Las Vegas, 81, 82
 at Llanos de Mojos sites, 929
 at Loma Macanche, 897–98
 at Marajó Island sites, 339, 340
 at Moche sites, 712, 718, 719, 722–23, 725
 at Muisca, 393, 394, 395–96
 at Nasca sites, 576, 577, 579
 at northern Chilean sites, 966
 at pampas and campos sites, 246, 247, 248, 249–50
 at Paracas Cavernas, 565
 at Paracas Necropolis, 568–69, 570, 571
 at Patagonian sites, 60–61, 69
 at Peruvia, 317
 at Puerto Supe, 770
 at Puruhá sites, 538
 in sambaqui societies, 320, 321, 323–27, 329–30
 at San Pedro de Atacama, 979–80, 985, 996
 at Santa Ana-La Florida, 480
 at Santa Elena Peninsula, 510
 at Sinú, 409
 at Suriname coast sites, 315
 at Tierradentro, 389f
 at Titicaca basin sites, 548
 at Tiwanaku sites, 741, 749–50, 966, 968, 969–70
 at Tolita, 493
 at Tumaco, 389
 at Uruguayan sites, 1120
 at Wari sites, 742–43, 751–52
 Burning, 41, 165–66, 178
 Burnished Black Ware ceramics, 477, 478
 Burnside mound, 305, 311
 Caballo Muerto Complex, 615–16, 626
 Cabo Blanco, 435
 Cabuza, 966, 968, 970
 Cachama, 441
 Cacicazgos, 501, 530, 538
 Cahuachi, 575–76, 577, 579, 581, 646, 647f
 Caiman, 307, 315
 Caivinahua, 269, 276
 Cajamarca, 101, 708, 738, 763, 765–66, 817, 894,
 897, 899
 Cajamarquilla, 648, 743, 768
 Calahoyo, 968
 Calca, 821
 Calchaquí Valley, 848, 849, 858–59, 968
 Calendar, solar, 748, 753
 Caleta Huelén, 964, 972
 Caleta Vitor, 47
 Calima, 390–92, 397–98
 Callejon, 685
 Callejón de Huaylas, 125, 138, 139–40, 708, 742
 Calpish, 771
 Camacho, Salvador, 1104

- Camana Valley, 743
 Camani, 199, 205
 Camaquen, 1032
 Camare, 433
 Camarones, 49f, 51, 53, 56, 112, 964
Cambridge History of the Native Peoples of the Americas, The (Salomon and Schwartz, eds.), 16
 Camelids, 37–38, 47, 64, 65, 96, 113, 121, 126–29, 140, 537, 548, 633, 685, 688, 695, 771, 895, 913
 alpacas, 93, 96, 97, 113, 121, 126–29
 guanacos, 62, 63, 64, 65, 66, 69, 72, 96, 113, 126, 127, 138–39, 140, 245, 246, 249, 250
 llamas, 93, 96, 97, 113, 121, 121, 472, 509, 589, 685, 688, 695, 696, 741, 898, 910, 983, 995
 domestication of, 126–29
 sacrifice of, 478, 1031, 1036, 1041
 vicuñas, 96–97, 113, 126, 127, 137, 138, 140
 Camellones, 534–35
 Camoruco, 437, 438
 Campo Laborde, 239, 244f
 Campos, 235–56, 1140
 early peopling, 236–45
 environment, 235–36
 Camutins, 343–54, 951
 political economy, 347–52
 settlement system, 344–47
 Cañadón las Cuevas, 63
 Cañahua, 107
 Canaima, 436
 Canals
 in Amazonia, 173–74
 at Chimú sites, 787
 in Ciudad Perdida, 423
 on the Ecuadorian coast, 508
 on the French Guiana coast, 227, 228
 at Llanos de Mojos, 927, 930, 937
 at Sierra Nevada de Santa Marta, 419
 at Wari sites, 739, 745, 747, 753
 Canapote, 407
 Cañari, 528, 538–40
 Canastero, 873, 874f
 Canastero de Cusin, 873
 Cañihua, 96
 Cannibalism, 688
 Caño Asita, 439
 Caño Caroní, 446–47
 Caño del Oso, 445, 446
 Caño Rabón, 413, 414f
 Caño Ventosidad, 446, 447
 Capacho, 436, 452
 Capibara, 244
 Captives, execution of, 1052–55
 Caquetíos, 448, 450
 Cará, 323
 Caracas, 443
 Carache, 450
 Caral, 613–14, 615, 633, 634–35f, 643, 646, 1150–51
 culture and society, 609–12
 tourism in, 1080
 Caranqui, 528–35
 Caras, 873
 Caravans, 589, 741, 895, 910, 968, 983–84, 986, 995
 Cardal, 622, 624, 626, 646
 Cardiac model, 363
 Cariamanga, 898
 Caribbean Archaeological Program, 1108
 Carib linguistic stock, 185, 370, 955, 1146
 Caripo, 296–98
 Carjaval, Jacinto de, 229
 Carmen, 269, 274
 Carniça I, 324
 Carúpano, 442
 Casa Blanca B, 768
 Casa del Minero-1, 65
 Casa de Pedra, 254
 Casa de Piedra, 245, 249
 Casapedrense, 69
 Casa Vieja, 268, 269
 Caserones, 913, 914, 964, 965
 Casma Valley, 615, 616–21, 789, 792, 802, 1149
 Casquiare Canal, 174
 Cassava, 315, 436
 Castellanos, Juan de, 229
 Castilia, 366
 Catacocha, 898
 Catamarca, 590, 592
 Catamayo, 477, 478, 898
 Catamayo A, 479, 880, 892
 Catamayo B, 467, 871, 893
 Catamayo C, 468, 893
 Catarpe, 852, 973
 Catastrophism, 1106
 Cauca Valley, 1153
 Causeways, 227, 927, 930, 931f, 936, 937
 Caverna da Pedra Pintada, 205, 207, 211, 283, 362, 365–66, 1143
 early human occupation at, 363
 foragers of, 194–98
 Caverna do Gavião, 207
 Caverna El Abra, 245
 Caves, 32, 61–63
 Cayambe, 528
 Cayenne Island, 218, 220, 224, 226, 227, 228, 229, 230, 231, 288, 292, 293, 371
 Caylán, 627
 CCP5, 66
 CCP7, 66
 Cebil, 590, 594
 Cedeñoid culture, 288, 438–39
 Cedro, Luiz, 1128
 Ceja de Montaña, 866, 872
 Cementerio de Nanchoc, 891
 Cementerio de Tucacas, 445

- Cemeteries. *See also* Burials
 at Chinchorro sites, 47
 at Guianas sites, 294, 295, 298
 at Maracá, 1009–12
 at Nasca sites, 576
 at Puruhá sites, 537
 at sambaqui sites, 328
 at Tiwanaku, 674
- Central Amazon, 952–53
- Central Andean people, 9
- Central Andes, 8, 12, 14–15, 17, 93–101, 761–77
 central coast, 767–70
 central highlands, 770–72
 climate and environment, 97–101
 eight natural regions, 94–97
 human sacrifice in, 1047–58
 Middle Horizon cultures of, 731–54 (*see also* Tiwanaku; Wari)
 north coast, 762
 north highlands, 763–67
 south coast, 772–75
 south highlands, 775–76
 urbanism in (*see* Andean urbanism)
- Centro de Investigaciones Arqueológicas Tiwanaku, 1096–97
- Ceramics/pottery
 at Abeja, 205
 at Alto Magdalena, 385, 387
 at Amazonian floodplain sites, 359, 363, 365–71
 at Amazonian sites, 198, 209–10, 211–12, 947, 1146, 1147
 at Argentinian sites, 593
 at Bahía, 496
 at Buckleburg, 307, 309
 at Cajamarca, 765
 at Calima, 390, 391–92
 at Camutins sites, 350–52
 at Cañari sites, 539
 at Caverna da Pedra Pintada, 197, 207
 at Chachapoya sites, 908–10
 at Challaubamba, 477
 at Chavín de Huántar, 693, 695, 696
 at Chavín sites, 625–26
 at Chimú sites, 796–97, 801
 at Chorrera sites, 468–69
 at Cotocollao, 87, 472
 at Ecuadorian-Peruvian border sites, 891–901
 at Ecuadorian sites, 474–75, 478–89, 491, 871–75
 at Fortaleza Valley, 779
 at Guangala, 497–99
 at Guayas Basin, 509
 at Guianas sites, 283–88, 289, 290f, 291, 293, 295, 296–98, 299, 300
 at Ica Valley, 773
 at Inca sites, 822–23, 848
 at La Chimba, 474
 at Loma Pucara, 475, 476
 at Machalilla sites, 466–67
- Ceramics/pottery (*cont.*)
 at Marajó Island, 951
 at Moche sites, 710–13, 716, 717–18, 720, 725
 at Monagrillo, 85, 86
 at Nasca sites, 572–73, 575, 582
 at northern Chilean sites, 971–72, 973
 at northern Colombian sites, 407
 at pampas and campos sites, 248, 249, 251, 253, 254, 255–56
 at Paracas, 564, 571–72
 at Paracas Cavernas, 565–68, 569
 at Peña Roja, 199
 at Peruvian sites, 614, 622
 at Puná Island, 509
 at Puruhá sites, 537
 in sambaquis, 321, 327, 328
 at San Jacinto, 86
 at San Pedro de Atacama, 980–81, 984, 985, 988–96
 at Santa Ana-La Florida, 879, 880–84
 at Santa Elena Peninsula sites, 509–10
 at Sierra Nevada de Santa Marta sites, 419
 at Suriname coast sites, 310, 313, 316–17
 at Tierradentro, 388
 at Titicaca basin sites, 549, 551, 553, 554–55
 at Tiwanaku sites, 675, 738, 747, 968–69, 970
 at Tumaco, 389
 at Tupi sites, 660, 661–62, 663, 665–66
 at Upano River Valley sites, 264, 274–76
 at Valdivian sites, 83, 462, 464–66
 at Venezuelan sites, 436, 437–54
 at Wari sites, 738, 739, 742, 743
- Ceramic stamps, 491, 896
- Ceremonial sites
 in the Central Andes region, 635, 641, 643–50
 at Chavín de Huántar, 692–93
 in the Guianas, 294–95
 at Nasca sites, 575–76
 in Northwestern Argentina, 591, 592–96
- Cerritos de indios, 247, 248, 249, 254, 1116, 1119–21, 1140, 1151. *See also* Mounds
- Cerro Amaru, 766
 Cerro Arena, 646
 Cerro Azul, 770, 817
 Cerro Baul, 739, 741
 Cerro Blanco, 623, 624, 626, 699
 Cerro Campanario, 911–12
 Cerro Chepén, 720, 722, 725
 Cerro Churu, 752
 Cerro Colorado, 563, 569–70, 597
 Cerro Cubilan, 891
 Cerro Curicó, 252f
 Cerro de Hojas, 512–14
 Cerro de la Virgen, 787
 Cerro del Oroa, 770
 Cerro de Los Burros, 237
 Cerro de los Indios, 67
 Cerro El Sombrero, 34

- Cerro Esmeralda, 973
 Cerro Jaboncillo, 512–14, 516
 Cerro La China, 34, 245
 Cerro La Horca, 770
 Cerro La Vigilancia, 242f
 Cerro Machado, 443
 Cerro Mangote, 84–85
 Cerro Ñañañique, 894, 895, 896f, 897, 898, 899
 Cerro Narrío, 467, 477, 478, 872, 885, 893
 Cerro Sazón, 766
 Cerro Sechín, 616, 618, 621, 623–24, 644, 645f
 Cerro Sota, 60
 Cerro Tres Tetas, 64
 Cerro Tuscán, 766
 Cerro Vicús, 899
 Chacacala, 899
 Chachapoyas, 708, 823, 836, 837, 903–22,
 1035, 1037f
 attempt to define, 904–6
 landscapes of, 906
 in Late Intermediate, 913–16
 in Middle Horizon, 911–13
 northern alliances, 908–10
 settlement patterns and interaction spheres,
 910–11
 Chachapuma images, 554
 Chaco War, 1093, 1095
 Chagas disease, 47
 Chagua, 854, 857
 Chakinani, 695
 Chala, 95, 835
 Challuabamba, 477–78, 479, 490, 872, 896
 Chambira, 364, 898
 Chancas of Andahuaylas, 813
 Chancay, 770, 1039, 1040
 Chancay Valley, 767–68
 Chan Chan, 651f, 762, 783, 787, 797, 798, 801,
 802, 1083
 human sacrifice at, 1048, 1052
 urbanism in, 650
 Chan Chan Master Plan, 1075–76
 Chan Chan-Moche Valley Project, 716, 783–84
 Chaquira, 530
 Charnel houses, 463
 Charqui, 96
 Charrua, 1116, 1117, 1123, 1124
 Chaski, 816
 Chavín, 125, 614, 622–27, 633, 646, 893, 901,
 910, 1148, 1151
 consolidation and expansion scenario, 625–27
 fieldwork at, 624–25
 redefining extent of, 623–24
 Chavín de Huántar, 129, 622–23, 624–25, 626,
 627, 636, 637f, 646, 681–700, 1148
 architecture of supernatural power, 683–90
 building sequences, 692–93
 character of residential population, 695–97
 history of scientific research, 682–83
 Chavín de Huántar (*cont.*)
 as a pan-regional center, 693–95, 697–700
 peer polities of, 697–700
 Chayhuac, 784
 Chen Chen, 739
 Chenopods, 140
 Chenque-1, 249–50
 Chenques, 60–61
 Cheqo Wasi, 750, 751–52
 Cherimoya, 109
 Chibcha, 8
 Chibchan language family, 408
 Chicama Valley, 709, 714, 762, 787, 802
 Chicha (ethnic group), 848, 991, 995
 Chicha (maize beer), 393, 410, 648, 688, 723,
 724–25, 740, 744, 792, 824, 1031, 1041
 Chicha Valley, 742
 Chiefdoms, 10, 12, 1139, 1148, 1149, 1155
 Amazonian, 371–72, 950, 953
 Camutins, 343–54
 Chiripa, 551
 Ecuadorian, 265, 277, 499, 500–501, 527–41, 873
 Inca, 849
 Nasca, 576
 of northern Colombia, 406–18
 of northwestern Argentina, 596–97
 Paracas, 571
 in sambaqui societies, 328
 at Santarém, 952
 Sinú, 406, 407–13
 of southwestern Colombia, 381–98
 Tairona, 406, 407–8, 413–18
 theocratic, 953
 Chilca-1, 112
 Chilchols, 918
 Childe, Alberto, 1127
 Child sacrifices, 1048, 1049f
 Chile, 983, 993, 1142–43, 1145
 animal domestication in, 123, 124, 127, 129
 fishing sites in, 146–50
 northern (*see* Northern Chile)
 plant domestication in, 112
 Chili peppers, 108, 116, 462, 464, 787, 1145
 Chillón Valley, 621, 622, 743, 767, 768,
 796–97, 802
 Chilpe, 972
 Chimo Capac, 783, 801
 Chimú, 15, 708, 724, 725, 761, 762, 765, 766,
 767, 770, 776–77, 783–802, 823
 ancestor veneration and, 786, 798, 1036,
 1038, 1042
 animal domestication and, 123
 expansion and incorporation strategies, 787–96
 human sacrifice and, 800, 1048, 1055
 interactions with other regions, 796–97
 patterns of urban society, 784–86
 post-conquest, 801
 worldview and social order, 797–98

- Chimú Capac, 743
 Chimú Goddess, 798, 800, 801, 802
 Chíncha, 15, 772–73, 823
 Chinchawas, 1035
 Chinchaycocha, 770, 771–72
 Chinchaysuyu, 825, 827
 Chinchero, 821
 Chinchipe, 884
 Chinchorros, 45–57, 963, 1034, 1140, 1144, 1145, 1155
 sedentism in, 47–50
 social milieu of, 54–56
 Chínhuilanchi, 871
 Chipepe, 451
 Chipihuayco, 854, 857
 Chiribaya, 101
 Chirimachay Cave, 911
 Chiripa, 117, 548, 549, 551, 552, 555
 Ch'isis, 549
 Chiu Chiu-200, 983
 Chivay, 99
 Chobshi Cave, 539, 870
 Chochos, 472
 Chocolate trees, 176
 Chokepukio, 776
 Chongos, 646
 Choque chinchay, 688
 Choquequirao, 1080
 Choroval, 787
 Chorrera, 460, 472, 475, 476, 493, 494, 497, 499, 501, 893, 896, 1040
 culture of, 468–71
 inter-zonal relationships, 871, 872–73, 876
 Chorrillo Malo-2, 66
 Chronology
 of the Amazonian floodplain (*see under* Amazonian floodplain)
 of Araracuara, 201f
 of Central Andes highlands, 764f
 of Ecuadorian prehistory, 868f
 of the Guianas, 280t, 281t
 of lower Amazon-Pará coast, 200f
 Middle Horizon, 732f
 of Nasca, 575
 of northwestern Argentinian sites, 588t
 of Paracas, 564
 Pleistocene, 32–34
 of the Titicaca basin, 546t
 of Tupian expansions, 663–64
 of Venezuela, 431f
 Chuare, 442
 Chucaripupata, 740
 Chucuito, 817
 Chullpas, 985, 1028, 1031
 Chuño, 96
 Chupa Cigarro Grande. *See* Caral
 Chupacoto, 697
 Chuquiago, 852, 855
 Ciénaga, 592, 593
 Cieza de León, Pedro, 510, 519, 681, 1050, 1091–92
 Cinnabar, 698
 Cinto, 419
 Circular structures, 685, 694, 750, 914, 918
 Circum-Caribbean tribes, 9, 12, 933, 943, 1139
 Ciribaya, 970
 Ciruela de fraile, 110
 Ciudadela-Cerro Pampa de Faclo, 722
 Ciudadela Rivero, 785f
 Ciudadelas, 650, 767, 784–86, 797
 Ciudad Perdida, 416f, 419–24, 1151
 Ciudad Real, 1128
 Civilization, origin of South American, 1148–52
Civilizational Process, The (Ribeiro), 13
 Clavas, 248
 Climate
 Amazonian floodplain, 363–64
 Central Andes, 97–101
 Ecuadorian-Peruvian border, 889
 Llanos de Mojos, 928
 Marajó Island, 342
 Pleistocene, 32–34
 Titicaca basin, 547
 Climax community, 160, 161
 Cloud forest culture. *See* Chachapoyas
 Clovis First argument/Clovis Barrier, 1142–44, 1154
 Clovis Tradition, 433
 Cobo, Bernabé, 1050
 Coca, 109, 110, 382, 423, 474, 509, 516, 518, 530, 535, 536, 537, 539, 771, 866, 876, 882, 891, 892, 917, 1031, 1041
 Cochabamba Valley, 732, 740, 750, 917, 989, 990, 993, 1091
 Cochasquí, 528, 1066–69, 1071, 1152
 Cojedes, 445
 Colca Valley, 1081
 Colegio de Arqueólogos del Perú (COARPE), 1082–83
 Colegio San Francisco de Sales, 475
 Collao, 972
 Collas, 1052
 Collique, 767
 Colombia, 1145, 1147
 animal domestication in, 125, 126, 129
 chiefdoms of southwestern, 381–98
 modernity and politics in archaeology, 1103–12
 northern (*see* Northern Colombia)
 plant domestication in, 110
Colombia (Reichel-Dolmatoff), 405
 Colomboy, 412, 413
 Columbus, Christopher, 121
 Comisión de Promoción del Perú (PromoPerú), 1080
 Committee on World Area Research, 16
 Conchopata, 580, 649, 676, 677, 734, 736, 1056
 trophy head-taking, 1057–58
 Wari relations with, 752–53
 Condorhuasi, 592

- Confederación Sindical Única Trabajadores
Campesinos de Bolivia (CSUTCB),
1097–98
- Conservation, 1084–85, 1132
- Convention on Illicit Import and Transfer of
Ownership of Cultural Property, 1078
- Copacabana, 817
- Copacabana Peninsula, 551, 553
- Copa de Oro, 446, 447
- Copaquilla, 971
- Copiaó, 973
- Copper, 491, 499, 509, 516, 550, 593, 792,
876–77, 899, 966, 968, 973, 985
- Coquero figurines, 876, 877f, 882
- Cordero Bajo, 646
- Cordillera Occidental, 527
- Cordillera Oriental, 527
- Coricancha, 1042
- Corn, 589. *See also* Maize
- Coro, 450
- Corobal, 439
- Corosony North, 226f, 227
- Corozal, 437, 438
- Corrugated Horizon, 480
- Corrugated Subtradition, 660
- Cortaderas, 852, 853, 855, 856f, 857
- Corveé, 753
- Cosanga, 264–65, 875
- Costeños, 405
- Cotacocha, 264
- Cotahuasi, 100
- Cotacollao, 87, 118, 467, 471–72, 473f, 474, 476,
872, 884
- Cotacuyoc, 776
- Cotton, 108, 110, 112, 113, 116, 118, 423, 437, 866
at Chachapoya sites, 908, 917
at Chimú sites, 787
at Ecuadorian sites, 462, 474, 516, 536, 537, 539
at Peruvian sites, 607, 608, 610
- Cotúa, 437
- Counterfeit paradise, 162–64, 178, 187
- Coyo, 675, 984
- Coyo Oriental, 674, 675, 969
- Coyor, 765
- Coypo, 247, 250, 253, 254
- Cranial modification, 674, 675–76
- Cranial morphology, 32
- Cremation, 294
- Crespo, 407
- Crónica del Perú* (Cieza de Leon), 1092
- Cross-cultural type, 10, 11
- Cubagua, 434
- Cubeo, 230
- Cubilán, 870
- Cueva Cóndor, 67, 68f
- Cueva Cuyín Manzano, 61, 62
- Cueva de las Manos, 65
- Cueva del Elefante, 433
- Cueva del Medio, 66
- Cueva de los Chingues, 67
- Cueva de los Espíritus, 252
- Cueva de Los Ladrones, 202
- Cueva de los Tayos, 479, 871–72
- Cueva del Puma, 67
- Cueva El Ciebo, 64
- Cueva Epullán Grande, 61–63, 71
- Cueva Lago Sofía-1, 60, 66
- Cueva Las Buitreras, 67, 67f
- Cueva Orejas de Burro-1, 69f
- Cueva Pali-Aike, 67
- Cueva Salamanca I, 112
- Cueva Tixi, 245
- Cueva Trafal, 61, 62
- Culebras, 125, 609
- Cultural core, 8, 11
- Cultural ecology, 165, 1148
- Cultural-environmental possibilism, 430
- Cultural evolution, 10–11, 1146–48
- Cultural field, 741
- Cultural Heritage Management (CHM)
in Brazil, 1127–33
in Peru, 1073–87
context for, 1076–81
inroads into, 1083–86
laws and international treaties, 1077–79
observers and players, 1081–83
strategies for, 1074–76
- Cultural relativism, 1107–8
- Cultural Resource Management (CRM),
1074, 1130
- Cultural type, 8–10, 11
- Culture areas, 7–8
- Cumaná, 442
- Cumarebo, 444, 445
- Cuntisuyu, 825
- Cunturmarca, 918
- Cupisnique culture, 622, 707, 710, 893, 895,
896–97, 901, 1040, 1148
- Curare, 198
- Curayacu, 125
- Curbatí, 448
- Curuá palm, 196
- Cusco, 1083–84
- Cusipata, 552, 553
- Cuy, 123–26. *See also* Guinea pigs
- Cuzco, 650, 742, 743, 775–76, 809, 811, 812, 814,
815, 816, 821, 825, 826–27, 916, 1027
- Dabajuro, 450–51, 454
- Daisy Cave, 146
- Daule, 490
- Decree 25/37 (Brazil), 1128
- Decree 833 (Colombia), 1110
- Deer, 66, 83, 84, 244, 246, 249, 250, 253, 307,
315, 393, 467, 470, 472, 475, 478, 688,
695, 908, 1008, 1120

- Demerara Formation, 303
- Department of Puno, 738
- Department of Tacna, 738
- Desert Tradition, 984, 985
- "Development of Complex Societies: Cultural Causality and Law" (Steward), 9
- Diamant, 219f, 220f, 221f
- Diasporas, 18, 185
 - Amazonian, 943–49
 - in the Andes region, 676–77
- Diet
 - at Atacama Desert, 675
 - at Cerro Mangote, 85
 - at Chavín de Huántar, 695–96
 - of Chinchorros, 47
 - of high elevation foraging societies, 138–40
 - of Incas, 824
 - at sambaqui sites, 322–23
 - of Xinguano, 957
- Diffusionism, 1106
- Diseases, 511
 - in Amazonian floodplain, 371
 - Chachapoyas and, 921
 - Chinchorros and, 47–50
 - Incas and, 816
 - in sambaqui societies, 323
 - at Sinú, 410
- Disposition (burial), 250
- Disturbance heterogeneity, 161
- Ditches, 226–27, 228–29, 930, 936
- DNA analysis, 61, 107, 932, 968, 1124
- Dogs, 93, 121
- Domestic violence, 48, 464
- Domono, 269, 272f, 274
- Dona Stella, 363
- Dos Cabezas, 709, 712, 713, 720
- Dos Caminos, 470
- Dos Palmas, 646
- Dourado Tradition, 198
- Drug paraphernalia, 738, 741, 749. *See also*
 - Hallucinogens; Psychotropic substances
- D-shaped structures, 738, 739, 750, 751
- Dual-process theory, 1139
- Duarte, Paulo, 1128
- Ducks, 121–23, 470, 509
- Early Formative Period
 - Ecuadorian-Peruvian border region in, 891–93
 - Titicaca basin during, 548
- Early Holocene Period
 - Amazonian agriculture in, 194–208
 - pampas and campos sites of, 236–45
- Early Horizon Period, 622–27
- Early Jubones Period, 468
- Early Narrío Period, 468
- Earthmoving, 341–42, 345–46
- Earthquakes, 97, 683
- Earthworks
 - of the Amazonian floodplain, 371
 - of the French Guiana coast, 217–32
 - of Llanos de Mojos, 927, 929–30, 932, 934
- Eastern slopes, of Andes, 935–36
- Ecoandes Project, 419, 423
- Ecological complementarity, 983
- Ecological succession, 160
- Ecology
 - of the Amazonian landscape, 157–79, 193–94
 - of the Atacama Desert, 45–47
 - cultural, 165, 1148
 - high elevation, 131–32
 - historical, 158, 159–60, 165, 193–94, 1148, 1154–55
 - new, 160–61
- Economic complementarity, 971, 973
- Economy
 - of Camutins, 347–52
 - diversification and intensification of areal, 249–56
 - in the Guianas, 282–83
 - of Marajó Island, 342
 - of pampas and campos sites, 239, 245
 - Tiwanaku influences on, 968
 - of Venezuela, 433
- Ecuador, 1145, 1147
 - animal domestication in, 123, 126
 - appropriating the past in, 1063–72
 - coast of (*see* Ecuadorian coast)
 - Formative (*see* Ecuadorian Formative)
 - highlands of (*see* Ecuadorian highlands)
 - inter-zonal relationships in, 865–85
 - lowlands of (*see* Ecuadorian lowlands)
 - pan-regional network of interactions, 878–85
 - Peru's conflict with, 1068
 - Peruvian border region (*see* Ecuadorian-Peruvian border)
 - plant domestication in, 110
 - pre-Columbian mound complexes, 263–77
 - sedentism in, 79, 80–84, 86, 87, 88
 - the setting, 866–69
 - western montaña, 474–75
- Ecuadorian coast, 869–70
 - early Regional polities of, 489–502
 - Formative cultures of, 461–71
 - late pre-Hispanic polities of, 505–19
- Ecuadorian Formative, 459–83
 - of the coast and western lowlands, 461–71
 - in the eastern lowlands, 479–82
 - in the highlands, 471–79
- Ecuadorian highlands, 471–79, 869, 870–71
 - central, 475–76
 - chiefdoms of, 527–41
 - in the Formative, 471–79
 - northern, 471–74
 - southern, 476–79

- Ecuadorian lowlands
 eastern, 479–82
 western, 461–71
- Ecuadorian-Peruvian border, 889–901
 in the Early Formative, 891–93
 environmental setting, 889
 in the Middle and Late Formative, 893–98
 in the Pre-Ceramic, 890–91
 regional developments, 898
- Edén, 268–69, 271f, 272f, 274
- Edge-Trimmed Tradition, 34–37, 40, 1143
- Effigies, 1029, 1032–33, 1038
- Egepe, 189
- Eggs, 1033
- Eggshell ceramics, 476, 477, 478
- El Abra, 125
- El Agua, 443
- El Brujo, 709, 716, 1053
- El Castillo de Santa, 716
- El Choque, 446, 447
- El Conchero, 435
- El Danto, 454
- El Dorado, 933
- El Encanto, 462
- El Guanaco, 237, 250
- El Hatillo, 123
- El Heneal, 435
- El Horno, 419
- El Infiernito, 393–94, 396
- El Inga, 870, 907
- El Jobal, 454
- El Jobo, 34, 41, 432, 433
- El Mayal, 442
- El Milagro de San José, 787
- El Mollar, 591
- El Morro, 442
- ELN, 408
- El Niño, 47, 95, 101, 119, 163, 506, 620, 648, 893, 897
- El Niño/Southern Oscillation (ENSO), 97, 100, 152, 364, 709, 792, 889
- El Obispo, 153
- El Palito, 444
- El Paraíso, 609, 622, 643, 644
- El Peñon, 435
- El Pichao, 597
- El Pinar, 443
- El Puesto, 65
- El Recreo, 112
- El Remanso, 479
- El Salado, 898
- El Salvador, 973
- El Tiestal, 448
- El Tingo, 475, 476
- El Trébol, 61, 62, 72
- El Túmolo de Malacara, 250
- El Venado, 393, 396
- El Verano, 65
- Emílio Goeldi Museum, 1006, 1007
- Empire and Conquest (cross-cultural type), 10
- Empires, 1139, 1148, 1155
 Chimú, 761, 783–802
 Inca, 809–27
 Wari and Tiwanaku, 738–44
- Enchaquirados, 1069–70, 1071
- Englefield, 70
- Engoroy, 468
- Entry approach, 29
- Environmental determinism, 101, 162–63, 186, 430
- Environments
 of Central Andes, 97–101
 of Ecuadorian-Peruvian border, 889
 of Llanos de Mojos, 927–32
 of pampas and campos, 235–36
 Pleistocene, 32–34
- Epullan Cave, 60
- Escuela 13 de Noviembre, 475
- Escuela Normal Superior, 1107
- Estero, 890
- Ethics, 1152–54
- Eulalia, 269, 274
- European Conquest, 298, 300, 359, 370–71, 816, 1115. *See also* Spanish conquest and occupation
- Evolutionism, 1105
- Exchange networks. *See also* Trade
 of Ecuador, 489, 865–66
 Incas and, 823
 of northwestern Argentina, 589, 592, 593
 of Paracas, 570
 of Peru, 611
- Exit approach, 29
- Exogamy, 676–77
- Extinct species, 33–34, 65, 121
- Falcón, 432, 433, 448, 450, 454
- Faldas de Sangay, 166
- Famabalasto, 597
- Faraquiel, 410
- Farfán, 787, 789–91, 797, 801
- Farmers and pastoralists, 12
- Farming, origins of, 1144–45. *See also* Agriculture
- Farm villages, 12
- Faron, Louis, 11–12
- Fase Uruguai, 239
- Feasting, 82, 83, 141, 326, 329
 at Camutins, 348, 350
 at Chavín de Huántar, 688
 at Ecuadorian sites, 478
 at Inca sites, 859
 at Muisca, 393
 at Tiwanaku sites, 747
 at Venezuelan sites, 448
 at Wari sites, 751
- Federico Villareal University, 1082

- Fell's Cave, 34, 65, 66, 67, 1143
 Fertility, 132, 547, 548, 549, 1033
 Figueira, Jose H., 1117–18
 Figurines, 1036–39
 at Bahía, 497f
 at Camutins sites, 352–54
 at Chorrera sites, 468
 at Ecuadorian sites, 500, 876
 at Guangala, 497, 498f
 at Jama-Coaque, 495–96
 at Sinú, 409
 at Suriname coast sites, 312, 314f
 at Valdivian sites, 83, 462
 Finca Cueva, 470
 Fincenú, 413
 Finnish Archaeological Project, 932
 Finzenú, 408–9
 Fisher-hunter-gatherers, 45
 Fishermen-gatherers, 279, 283
 Fishing and fish
 in Amazonia, 174, 196, 207–8
 at Buckleburg, 307
 at Camutins, 346
 in the Central Andes, 95, 100
 at Cerro Mangote, 84
 at Chorrera sites, 470
 at Ecuadorian-Peruvian border region, 891
 at Las Vegas, 81
 at Marajó Island, 340, 342, 343, 354–55
 at pampas and campos sites, 244, 247, 248, 249, 253, 254
 at Peruvian sites, 611
 at Puerto Hormiga, 86
 in sambaqui societies, 322–23, 327, 328
 at Sinú, 410–11, 413
 in Tairona, 408, 415
 at Titicaca basin sites, 545, 548
 at Upper Xingu sites, 957
 at Valdivian sites, 83, 462
 in Venezuela, 434, 435
 in western South America, 145–54
 Fishtail projectile points, 34, 40, 41, 237, 242f
 Floodplain
 Amazonian (*see* Amazonian floodplain)
 of northern Colombia, 408–13
 Foragers, 1147
 of Aracacuara, 198–206
 of Caverna da Pedra Pintada, 194–98
 generalized and specialized, 34–40
 high elevation (*see* High elevation foraging societies)
 optimal theory of, 191–93
 Proto-Archaic, 33
 Ford, James, 1108
 Ford Method, 432
 Forest islands, 169
 Formative (cross-cultural type), 10
 Formative Period. *See also* Early Formative Period; Ecuadorian Formative; Late Formative Period; Middle Formative Period
 Amazonian agriculture during, 208–11
 Titicaca basin during, 545–58
 Fortaleza de Paramonga, 770
 Fortaleza Valley, 609–12, 615, 779
 Fortín Necochea, 245
 Foundation for National Archaeological Research (FIAN), 1108–9, 1110
 Foxes, 62, 71
 French Guiana, 279, 283, 288, 293, 298, 299, 300
 French Guiana coast, 217–32
 demographic issues, 230–31
 ethnographic perspectives, 227–29
 historic perspectives, 229
 landscape of, 217–18
 Frontera, 418, 423
 Fruit trees, 176, 470, 474
 Fuerte Quemado, 849
 Funerary practices. *See* Burials
 Fúquene, 394–95

 G-31, 461–62
 Gaira, 414–15, 418, 419
 Gairaca, 419
 Galindo, 713, 718, 720, 723, 724
 Gallery of the Lanzón, 689
 Gallinazo, 647, 707, 714, 718, 723, 899. *See also* Virú Tradition
 Gamma diversity, 159
 Garagay, 614, 644
 Garúa, 95
 Gate of the Sun, 734, 748, 1090, 1092, 1093
 Gaván, 448
 Gê linguistic group, 83, 254–55, 328, 367, 947, 954
 Gender differences. *See also* Women
 diasporas based on, 676–77
 in grave goods, 50–51
 Generalized regional economy, 239
 Gentilar, 971
 Geoglyphs, 577, 579, 581
 Germany, 1078–79
 Gilgais, 218
 Global warming, 178
 Glyptodonts, 239, 433, 870
 Gold, 138, 139f, 140
 at Alto Magdalena, 384–85
 at Amazonian sites, 950
 at Argentinian sites, 593
 at Calima, 390, 391–92
 at Chachapoya sites, 917
 at Chavín de Huántar, 696, 698
 at Chavín sites, 625
 at Ecuadorian-Peruvian border sites, 895, 899
 at Ecuadorian sites, 491, 530, 876–77
 at Guangala, 499

- Gold (*cont.*)
 at Inca sites, 973
 at Loma Macanche, 898
 at Moche sites, 718
 at Muisca, 395, 396
 at northern Chilean sites, 965
 at Paracas, 572
 at Puná Island, 509
 at Puruhá sites, 537
 at Putushío, 477, 478
 at Serranía de San Lucas, 408
 at Sinú, 409, 410
 at southwestern Colombian sites, 382
 at Tierradentro, 388
 at Tiwanaku sites, 741, 967, 968, 970
 at Tolita, 494
 at Tumaco, 389, 397, 398
- Golden Rock, 284
- Gold Museum, 1107, 1111
- Gourds, 108, 110, 112, 116, 118, 140, 202, 211, 462, 470, 607, 787, 965
- Goya-Malabrigo culture, 254
- Gran Alzamiento, 859
- Gran Chimú, 784, 797
- Gran Pajatén, 910, 911, 914, 918, 921, 922
- Grave goods
 at Argentinian sites, 590
 at Bahía, 496
 at Calima, 391
 at Cañari sites, 540
 at Chachapoya sites, 918–20
 at Chinchorro sites, 50–51
 at Conchopata, 676
 at Guangala, 499–500
 at Moche sites, 722
 at pampas and campos sites, 246
 at Paracas, 563
 in sambaquis, 326
 at San Pedro de Atacama, 979–80, 988, 990, 991
 at Santa Ana-La Florida, 480
 at Tiwanaku sites, 749–50, 969
- Green idol, 1034
- Greenstone artifacts, 884–85
- Ground sloth, 33, 65, 71–72, 73, 239
- Gruta da Caba, 1009, 1020
- Gruta das Caretas, 1009, 1011f, 1020–21
- Gruta das Formigas, 1009, 1020
- Gruta do Baiuna, 1009, 1020
- Gruta do Carrapato, 1009
- Gruta do Cururu, 1009, 1020–21
- Gruta do Jaboti, 1009, 1020
- Gruta do Periquito, 1009, 1020
- Gruta do Pocinho, 1009, 1020
- Gruta do Veado, 1009, 1020
- Guadalupe, 450
- Guadalupito, 716
- Guajará mound, 343, 349
- Guambianos, 1111
- Guana, 953
- Guanacos. *See* Camelids
- Guañape, 607, 614
- Guangala, 490, 494, 497–500
- Guapú, 268
- Guaraguo, 442
- Guarani, 255–56, 321, 659, 661, 662, 664, 666, 667, 668, 1116, 1123
- Guarguapo, 437, 440
- Guaribe, 441
- Guárico, 445
- Guarita, 661
- Guarni, 665
- Guasare-Socuy micro region, 454
- Guatacondo, 964, 965
- Guava, 109, 112, 116
- Guayabita, 443
- Guayana, 435
- Guayaquil, 18, 1069–70, 1071
- Guayas Basin, 118, 168, 506, 508–9
- Guenoa, 1116
- Guiana coast, 316
- Guianas, 279–301
 first villages of, 282–83
 increasing complexity in, 284–98
 Paleolithic peopling in, 279–82
- Güico, 441
- Guinea pigs, 93, 121, 123–26, 253, 472, 475, 478, 509, 688, 913, 1041
- Güiria, 443
- Guitarrero Cave, 110, 113, 125, 133, 134, 139–40
- Gulf of Guayaquil, 506, 509
- Gumilla, Juan, 229
- Gunaco, 71
- Guyana, 217, 220, 231, 279, 283, 284, 288, 298, 299, 300
- Guzmango Viejo, 765
- Haba, 96
- Hacienda El Dorado, 110
- Hacienda Lusitania, 110
- Hallucinogens, 554, 578, 590, 594, 736, 827.
See also Drug paraphernalia; Psychotropic substances
 at Camutins, 350
 at Chavín de Huántar, 687
 at Ecuadorian sites, 481, 884
 at Maracá, 1023
 at northern Chilean sites, 966
 at San Pedro de Atacama, 985, 990
 at Tiwanaku sites, 749
- Handbook of Amazonian Languages* (Dixon and Aihkenvald), 943
- Handbook of South American Indians* (Steward), 3–7, 8–9, 10, 11–12, 16, 17, 18, 19, 659, 731, 933, 943, 1137, 1139, 1141, 1147, 1148, 1155

- Hatahara, 188f, 189, 205
 Hato Nuevo, 454
 Hatunmarca, 771
 Hatun Qolla, 817
 Hatun Xauxa, 817, 819
 Hearths
 at Caral, 610, 613–14
 at Caranqui sites, 532
 at Chachapoya sites, 908
 at Ecuadorian sites, 878
 at Paracas, 571
 at Patagonian sites, 67
 at Peruvian sites, 626
 Pleistocene, 39
 at Quebrada Tacahuay, 152
 at Santa Ana-La Florida, 480, 892
 Hemispheric mounds/tolas, 531–32
 Herding, 140, 589, 772, 964
 Herradura, 506
 Hertenrits, 288–89, 290f, 291, 292, 293, 300, 303, 309, 310–16
 Early and Late, 312–16
 frontier village of, 316–17
 Heterarchical systems, 341, 528, 952
 Hibito, 917
 Hierarchical systems, 341, 344–47
 Hierba Buena Ichubamba, 475
 High elevation foraging societies, 131–41
 adaptive radiation, 136–37
 adaptive strategies, 133
 ecology and biology, 131–32
 empirical record, 133–34
 social formations, 137–38
 Highlands
 of Central Andes (*see under* Central Andes)
 Ecuadorian (*see* Ecuadorian highlands)
 of northwestern South America, 87
 Highways, 816, 973. *See also* Qhapaq ñan
 Historical and Geographical Institute
 (Brazil), 1127
 Historical contingency, 187
 Historical ecology, 158, 159–60, 165, 193–94, 1148, 1154–55
 Historical morphology, 948–49
 Hokomo Tradition, 453
 Holocene Period. *See* Early Holocene Period; Late Holocene Period; Middle Holocene Period
 Honcopampa, 742
 Honda, 890
 Horizontal complementarity, 138
 Hornoid Tradition, 454
 Horses, 33, 64, 65, 73
 Horticulture, 870, 890–91. *See also* Agriculture
 House gardens, 208
 Houses
 at Alto Magdalena, 385, 387
 at Amazonian sites, 166–67
 Houses (*cont.*)
 at Argentinian sites, 589, 598
 at Caral, 610
 at Chachapoya sites, 914
 at Cotacollao, 472
 at Guianas sites, 283, 294
 at Paracas, 571
 at Titicaca basin sites, 557
 at Tiwanaku sites, 745
 at Valdivian sites, 82–84
 at Wari sites, 739
 Huaca-1, 794
 Huaca A, 618f, 619, 620, 621
 Huaca Cao Viejo, 743, 1053, 1054f
 Huaca de Cabeza Vaca, 796
 Huaca de la Luna, 647, 709, 710, 712, 713, 717f, 718, 725, 762, 1036, 1149
 Cultural Heritage Management at, 1083, 1084–85, 1086
 human sacrifice at, 1053, 1055
 political importance of, 716
 unusual configuration of, 724
 Wari artifacts at, 743
 Huaca de la Luna Archaeological Project (HLAP), 1084–85
 Huaca de los Reyes, 614, 615–16, 623–24, 626, 644, 1150, 1151
 Huaca del Sol, 647, 709, 710, 712, 713, 724, 762, 1055, 1085, 1149
 political importance of, 716
 Wari artifacts at, 743
 Huaca Fortaleza, 720
 Huaca Guavalito, 626
 Huaca Herederos, 616
 Huaca Larga, 793–95
 Huacaloma, 895
 Huaca Malena, 743, 770
 Huaca Partida, 624, 626, 699
 Huaca Prieta, 146, 607, 880, 893
 Huacas, 581, 1030, 1031, 1032, 1041
 Huacas Cao, 647
 Huachichocana Cave, 112
 Huacho, 269
 Huaihuarani, 971
 Hualfin, 852, 854f, 855, 857, 968
 Huallaga Valley, 125
 Huamachuco, 742, 765, 766–67, 817
 Huamanga, 676, 752
 Huambacho Viejo, 627
 Huancabamba, 894
 Huancaco, 647, 717–18
 Huancas, 916
 Huancavelica, 698
 Huancavilca, 510
 Huánuco Pampa, 817–18
 Huapula Complex, 169, 266–68, 269, 273, 274–76
 Huaquerones, 769
 Huaras, 685

- Huari, 117, 636, 649, 677, 1149. *See also* Wari
 life and culture in, 744–53
 Tiahuanaco cross-dated with, 734–37
- Huarcoto, 624, 626
- Huari Norteño, 743
- Huarmey Valley, 762, 796
- Huaro, 742
- Huarpa, 117, 745
- Huascar, 825, 916
- Huauque, 1032–33
- Huaura Valley, 609–12, 615, 767–68, 770, 1149
- Huayna Capac, 672, 916, 1065, 1067
- Huaynaputina, 97
- Huaynuná, 613, 621
- Huayurco, 481, 878
- Huentelauquén Complex, 38, 152–53, 154
- Huepón, 908, 910, 911
- Humachucho, 763
- Humaitá Tradition, 248, 254
- Human occupation. *See also* Peopling; Settlement
 patterns
 of the Amazonian floodplain, 362–64
 of the Ecuadorian-Peruvian border region, 890
 landscape associated with, 166–67
 of northern Colombia, 418–24
 of Patagonia, 59–73
 Pleistocene, 40–43
 of the Suriname coast, 305
- Human sacrifice, 595, 1047–58
 Chimú and, 800, 1048, 1055
 dedicatory, 1047, 1048–49
 Incas and, 827, 1048, 1052
 of retainers, 1047, 1050–51
- Humid lowlands, 118
- Hunos, 916–17
- Hunter-gatherers
 of Amazonia, 176
 of Bogotá, 87
 of Caverna da Pedra Pintada, 194
 complex, 322
 of Ecuador, 869, 870
 of Guianas sites, 279–82
 immediate return, 41
 nomadic, 12
 of the pampas and campos, 237, 239, 244, 247,
 248, 249, 250–53, 254
 Pleistocene, 33, 38, 40, 41, 42
 at Sierra Nevada de Santa Marta, 418
 at Venezuelan sites, 435, 436
- Hunting
 in Amazonia, 176
 in high elevation foraging societies, 138–39
 at Machalilla sites, 467
 at Valdivian sites, 83, 462
 at Venezuelan sites, 436
- Hunting and gathering bands. *See* Bands
- Hurpa, 676
- Hybridity, 17, 18
- Hypoxia, 113, 132, 135, 136
- Hypsitermal, 245
- Ibiate Mound Complex, 168–69, 176–77
- Ibicui, 34
- Ica culture, 823
- Ica La Vieja, 773, 774f
- Ica Valley, 564, 566, 567–68, 570–71, 572, 743,
 772, 773
- Idols, 294, 1029, 1030–31
- Igapó, 194
- Igarapé do Lago, 1006, 1007, 1009
- Iguanas, 84, 435
- Ijka, 418
- Illimani Mountain, 746, 748
- Ilo river valley, 101
- Imiwaia, 70
- Inca Horizon, 899–901
- Incarracay, 740
- Incas, 8, 15, 56, 127, 131, 549, 681, 684,
 734–35, 740, 743, 749, 761–62, 765,
 775, 777, 809–27, 845–60, 1064, 1065,
 1067, 1138
 administrative centers of, 817–18
 ancestor veneration in, 1029, 1030, 1035
 archaeological story of, 809–11
 architectural transformations and, 821
 Caranqui and, 528, 533–34
 Chachapoyas and, 904, 913, 916–21
 Chimú and, 783, 784, 790, 801
 creation of a new agency, 848–51
 Ecuadorian coast and, 509, 519
 fortifications of, 819–21
 human sacrifice and, 827, 1048, 1052
 imperial enclaves of, 817
 indigenous experiences within settlements,
 851–58
 khipu of (*see* Khipu)
 material culture of, 822–25
 migration in, 672
 new social relations, 846–48
 northern Chile and, 963, 973–74
 origin myths of, 811
 patterns of imperial expansion, 816–21
 production enclaves of, 818
 San Pedro de Atacama and, 973, 991
 secondary facilities of, 817
 state formation and expansion, 811–15
 storage facilities of, 818, 819, 821
 Tiwana and, 1092
- Incatunhui, 549
- Inca Yupanqui. *See* Pachacuti
- Incipient Farmers (cross-cultural type), 10
- Incised-Punctuated Tradition, 288, 355, 365,
 369–71, 948
- Incised Rim Tradition, 185, 365, 366, 370,
 948, 1146
- Indians of South America* (Radin), 11

- Indigenous South Americans* (Wilson), 15–16
 Infant mortality, 132, 136, 968
 Ingapirca, 539–40
 Ingenio Valley, 571, 575
 Inguapí I, 389
 Inguapí II, 389
 Inheritance rights, 1029, 1032
 Initial Ceramic Period
 Peruvian coast during, 614–22
 semi-sedentary fisher-folks of, 207–8
 Institute of Andean Research, 1108
 Institut Français d'Etudes Andines (IFEA), 265
 Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN), 1130
 Instituto Nacional de Cultura (INC), 1074, 1076, 1078, 1079, 1081–82
 Intangibilidad, 1075
 Interpretative summary, 9, 10, 12
 Interserrana area sites, 236, 238t, 245
 Inticancha, 918
Introduction to American Archaeology, An (Willey), 12–13
 Invented tradition, 695
 Ipatse, 956f
 Iquique, 964
 Irapa, 443
 Irrigation agriculture, 12. *See also* Canals
 in the Andes, 116
 at Caral, 611
 in the Central Andes, 99, 100, 635
 at Chimú sites, 787
 at Inca sites, 818
 at Moche sites, 710, 713, 716, 721–22, 725
 at northern Chilean sites, 965
 at Wari sites, 742, 745, 747
 Iruya, 985
 Isaacs, Jorge, 1104
 Isla de La Plata, 516
 Isla Esteves, 740
 Isla Larga, 248, 1121
 Itacoatiara, 296–97
 Italo-Peruvian Fund, 1081
 Itaparica, 34, 41, 198
 Itararé, 254, 321
 Itinerant gardeners, 202

 Jaboticabeira II, 324–27, 328
 Jack beans, 107, 108, 110, 112, 113
 Jaguay, 38, 46
 Jalca, 96
 Jama-Coaque, 15, 490, 491, 494–96, 500, 506–8
 Jamari, 368
 Jamas River Valley, 118
 Jambelí, 490, 899
 Janabarriu, 624, 625, 626, 695, 696, 698
 Janca, 97
 Japurá, 366
 Jargampata, 753

 Jatuarana, 368
 Jauari, 366
 Jauja, 118
 Jauranga, 568
 Jaywamachay, 125, 128
 Jelí, 892
 Jennings, Jesse D., 13–14
 Jequetepeque Valley, 709, 714, 718–19, 720–22, 742, 762, 789–92, 793, 802
 Jerusalén, 123
 Jicama, 107, 110, 112, 116
 Jincamocco, 648
 Jirajaras, 448
 Jiskairumoko, 133, 134, 138, 140
 Jívaro, 1047, 1055, 1056
 Joboid technology, 433
 Jocay, 510–12
 Joint Committee on Latin American Studies, 7
 Jomon culture, 462
 Jondachí, 870
 Juchuy Coscco, 821
 Juella, 597
 Jujuy Puna, 989, 990, 993
 Junín Puna, 128, 136–37, 138
 Juríes, 848
 Juruna, 947
 Jutái, 196

 Kaingang, 255
 Kalasasaya, 734, 747, 748, 1090
 Kala Uyuni, 554, 555
 Kali'na, 227, 230
 Kallanka, 821, 852, 855
 Kancha, 857
 Kantatayita, 747
 Karaja, 947
 Karinya, 231
 Karp, Eliane, 1080
 Kaurikreek, 284
 KAVA project, 932
 Kayapó, 169, 173, 189, 192, 202
 Kelim technique, 966
 Kennings, 692
 Kerikala, 747
 Keros, 738, 741, 744, 749, 969
 Keystone species, 164
 Khipu, 823, 825, 831–41, 918–20, 1138
 accounts and accounting, 839–40
 construction of, 831–34
 dating of, 836–38
 number of, 834
 present-day study of, 838–39
 provenance of, 834–36
 Khonko Wankane/Wankani, 554, 555, 557, 740, 745
 Kilamope, 268, 271f
 Killke, 775, 822
 Kingdom of Quito, 1064–66, 1071
 Kogi, 418

- Kokáma, 662, 948
 Konduri, 951
 Koriabo, 292, 298–300
 Kotosh, 623, 626, 643, 693
 Kotosh Religious Tradition, 610, 612–14, 626, 695, 1042
 Krasky, 443
 Kuelap, 910, 911, 913, 914–16, 922, 1081
 Kuikuor, 955
 Kuikuru, 230
 Kulturkreise, 7–8
 Kuntur Wasi, 626, 633, 697, 895
 Kurikuro, 958
 Kwatta, 288, 289–92, 293, 298, 300, 316, 317
- La Aguada, 969
 La América, 443
 La Asomada, 396
 Laberinto, 784
 La Betania, 446, 448
 La Cabrera, 443–44
 La Calerta de Talambo, 792
 La Calzada, 446
 La Calzada de Páez, 447
 La Carolina, 468
 La Centinela, 770, 772–73, 817, 835
 La Centinela de San Pedro, 773
 La Chimba, 118, 472, 474, 872, 873
 La Chimba-13, 148, 150, 152–53. *See also*
 Quebrada de las Conchas
 La Chorrera, 468
 La Colorada, 254
 La Congona, 916
 La Cumbre, 787
 La Emerenciana, 464, 466, 871, 884, 892
 La Encantada, 897, 898
 La Esmeralda, 247
 La Esperanza, 269, 273f
 La Florida, 622
 La Galgada, 117, 643, 880, 893
 Lagarto overo, 250
 Lago Grande, 205
 La Gruta, 112, 438
 La Gruta-Ronquín, 209, 284, 437
 La Guajira Peninsula, 454
 Laguna Blanca, 590
 Laguna de los Cóndores, 835–36, 837, 913, 918, 920f, 921
 Laguna de Sotelo, 254
 Laguna Huayabamba, 913
 Lagunillas Tradition, 453
 La Huerta, 597, 598, 849, 854
 La Jalca, 913, 914, 918
 La Leche Valley, 762, 793–96, 802
 Lambayeque culture, 708, 724, 725
 Lambayeque region, 1083, 1085–86
 Lambayeque Valley, 709, 714, 718–20, 738, 762, 789
 La Mina, 712, 720
- La Moderna, 239
 La Mulera, 452
 La Muña, 576, 577, 579
 Lancha Packewaja, 70
 Landscape capital, 161
 Landscapes. *See also* Anthropogenic landscapes
 Amazonian, 157–79, 193–94
 Chachapoya, 906
 of the French Guiana coast, 217–18
 of the Suriname coast, 303–5
 Lanzón, 682, 683, 689–90, 691f
 La Olla, 245
 Lapa das Caretas, 1009, 1020–21
 Lapa do Boquete, 39
 Lapa do Pocinho, 1009, 1020
 La Paloma, 110–12
 La Paya, 597, 598
 La Paya/Guitián, 849, 850f
 La Paz, 1089, 1095–96
 La Peca, 898
 La Pitía, 434, 454
 La Plata Island, 464, 895
 La Playa, 921
 La Ponga, 467
 La Providencia, 274
 La Puerta, 817
 La Quicaca, 989
 Lara, 448, 450
 Larache, 969
 La Real, 1056
 Large complexes, 274
 La Rinconada, 594, 595
 Lasana, 972
 Las Animas, 646
 Las Casitas, 433
 Las Conchas, 46, 1144
 Las Cruces, 506
 Las Guayabitas, 453
 Las Haldas, 615, 643, 644
 Las Lagunas, 433
 Las Locas, 448
 Las Minas, 443
 Las Pailas, 597
 Las Palmas, 475
 Las Trancas Valley, 1057
 Las Varas, 435
 Las Vegas, 39, 41, 85, 86, 202, 890, 891, 1144, 1145
 fishing at, 148
 mobility in, 80–82, 87
 Late Cotocolao Period, 468
 Late Formative Period
 Ecuadorian-Peruvian border in, 893–98
 Titicaca basin during, 553–57
 Late Holocene Period, 249–56
 Late Intermediate Period
 Central Andes during, 761–77
 Chachapoyas during, 913–16
 San Pedro de Atacama during, 985

- Late Pleistocene
 Amazonian agriculture in, 194–208
 pampas and campos sites of, 236–45
 Late Pre-Ceramic Period, 607–14
 Late Pre-Columbian Period, 899–901
 Late Pre-Hispanic Period
 Central Andes during, 761–77
 Ecuadorian chiefdoms of, 527–41
 Ecuadorian coast polities of, 505–19
 northern Colombia during, 405–24
 La Tiza, 774
 Lauri, 767–68
 Lauricocha, 133, 134
 Lavasén, 891, 908
 Law 397 (Colombia), 1110
 Law 3924/61 (Brazil), 1129, 1132
 Law 282296 (Peru), 1077
 Law 394/2006-CR (Peru), 1079
 Layzon, 697
 LC1, 836
 Legumes (pulses), 107–8
 Lemons, 1008
 Leyes del patrimonio, 1077
 Lima beans, 107, 108, 110, 116, 607
 Lime, 516, 518, 891
 Lipez, 989, 991, 993, 995
 List of World Heritage in Danger, 1079
 Llamas. *See* Camelids
 Llanos de Mojos, 99, 168, 169, 173, 174, 277, 927–38
 connections to other regions, 934–36
 geography and environment, 927–32
 history of research, 932–33
 Llanos de Venezuela. *See* Venezuelan llanos
 Llaqtacocha, 918
 Llaxaguasi, 1052
 Llerén, 82, 105, 110, 113, 118, 464, 1145
 Llipta box, 882
 Lobo, Bruno, 1127
 Logistical strategies, 37, 38, 41, 42, 81, 82, 86
 Loja, 871, 899–901
 Lokono, 371
 Loma Alta, 110
 Loma Macanche, 897–98
 Loma Negra, 712, 713, 718, 1152
 Loma Negra de Azampay, 597
 Loma Pucará, 872
 Loma Rica de Shiquimil, 597, 598
 Loma Saavedra, 796
 Looting, 391, 718, 749, 751, 897–98, 1076–77, 1152–53
 Lopes, Raimundo, 1128
 Lord of Sipán, 719
 Los Ajos, 1121
 Los Amarillos, 597
 Los Arangues, 448
 Los Barrancos, 437, 440
 Los Caros, 445
 Los Cocos, 454
 Los Esteros, 496
 Los Gavilanes, 125, 611
 Los Indios, 1121
 Los Medanos, 153
 Los Peroles, 895
 Los Pinchudos, 918, 919f, 921, 922
 Los Soles, 873–75
 Los Teques, 443
 Los Tiestos, 454
 Los Toldos, 34, 64, 65
 Lower Buritaca Valley, 419
 Lower Camarones, 973
 Low-level food production, 139
 Lúcumá, 109, 110, 116, 607
 Lukurmata, 557, 740
 Lupaqa, 972
 Lupine, 107, 108, 113, 117
 Lurín Valley, 621, 622, 767, 768–69, 770, 1149
 Mabaruma, 284–86, 300, 303, 307, 309, 310f, 311f, 316, 317
 Macabalaca, 627
 Machalilla, 460, 466–67, 472, 475, 871–72, 884, 892, 893
 Machas, 150, 151
 Machiparo, 950
 Machu Picchu, 650, 652f, 743, 821, 1076, 1079, 1080, 1081, 1083, 1084, 1111, 1153
 Maderas Enco, 51
 Mafa, 468
 Maillard, 221f
 Maize, 82, 85, 96, 107, 110, 112, 113, 116, 118, 140, 204, 205, 210, 224, 226, 232, 248, 255, 283, 370, 382, 390, 413, 438, 439, 444, 450, 453, 454, 732, 1145
 at Chachapoya sites, 914
 at Chavín de Huántar, 685, 695–96
 at Chimú sites, 787
 at Ecuadorian sites, 459, 462, 464, 467, 470, 472, 474, 480, 534, 536, 870, 872
 at Inca sites, 811, 812, 814, 824
 at Marajó Island sites, 951
 at Peruvian sites, 611
 at Tiwanaku sites, 740
 at Uruguayan sites, 1121
 at Wanka, 771
 at Wari sites, 753
 Maize beer. *See* Chicha
 Majes Valley, 1057
 Makú, 211
 Malagana, 1153
 Malambo, 370
 Malamoid Tradition, 454
 Mala Valley, 770
 Malibu, 412
 Mallquis, 1030, 1033, 1040, 1041, 1042. *See also* Mummies

- Mamorón, 418
- Manabí
 northern, 506–8
 southern, 506, 510
- Manacapurú, 205, 365, 366, 367
- Manachaqui Cave, 891, 893, 895, 907–8, 909, 910, 911
- Manatee, 315
- Manchan, 788, 792, 793f, 794f, 797
- Manchay, 1041
- Manchay Bajo, 622, 624, 626
- Manco Capac, 811, 812
- Mangueiras, 205
- Manicure, 434
- Manioc, 8, 85, 105–6, 110, 113, 116, 118, 163, 205, 208, 209, 212, 224, 226, 229, 232, 255, 283, 342, 369, 382, 390, 413, 423, 430, 436, 437, 444, 454, 1147
 at Ecuadorian sites, 459, 464
 at Llanos de Mojos, 930, 932
 at Maracá, 1008
 at Upper Xingu sites, 957, 958
- Mano Capac, 1032
- Manos, 150, 151
- Manteño, 15, 509–10, 511–12, 515, 516–18, 519
- Manteño-Huacavilca people, 1069–70
- Manzanillo, 433
- Mapaou, 300
- Maps
 archaeological sites, regions, and field complexes, 111f
 Archaic Period sites, 134f
 Caño Rabón fields, 414f
 Central Andes sites, 94f, 673f, 763f
 Chachapoya sites, 905f
 Chinchorro sites, 48f
 Chiripa structures, 552f
 domesticated plants in the Andes, 106f
 Ecuador, 867f
 Ecuadorian coast, 492f, 507f
 Ecuadorian-Peruvian border sites, 890f
 fishing sites, 147f
 Guianas, 280f
 Llanos de Mojos, 928f, 930f
 major early archaeological sites in South America, 31f
 major physiographic zones in South America, 30f
 middle Caquetá River, 202f
 Murdock's culture areas, 945f
 northern Chile, 964f
 northwestern Argentina, 588f, 846–47f
 pampas and campos, 236f
 Peru, north and central, 608f
 Peruvian Moche sites, 708f
 Peruvian south coast, 564f
 San Pedro de Atacama, 980f, 982f
 Seward's cultural areas, 944f
 South American countries, 4f
- Maps (*cont.*)
 South American rivers, 5f
 south-central Andes, 980f
 Tawantinsuyu, 810f
 Upano River Valley mound sites, 267f
 Venezuela cities and states, 430f
 Wari and Tiwanaku spheres, 733f
 western South America, 1028f
- Maracá, 298
 archaeology of region, 1005–7
 territory of, 1007–9
- Maracaibo Lake basin, 453, 454
- Maracá urns, 1005–25
 anthropomorphic, 1012–15, 1022
 attributes of, 1012–20
 cemeteries containing, 1009–12
 contextualizing, 1023–25
 materials and manufacturing process, 1016
 motifs on, 1016–17
 parts of, 1012
 zoomorphic, 1012, 1015, 1022
- Marajoara culture, 366, 368, 661–62, 1140, 1151
- Marajó Island, 168, 169, 205, 217, 277, 339–55, 368, 370, 372, 950
 chiefdoms of, 343–54, 952
 research at, 951
 water management at, 341–42
- Maranga, 648, 835
- Maranga-Chayavilca, 769
- Marañón basin, 878–85
- Marañón Valley, 904, 906, 910
- Maras, 814
- Marayniyoq, 752
- Marazzi, 70
- Marcahuamachuco, 765, 766
- Marcaya, 575
- Margarita Island, 443
- Marginal tribes, 8, 9, 943, 1138, 1139
- Marifilo-1, 61
- Mariscal, 597, 598, 599f
- Maritime Foundations of Andean Civilization (MFAC) hypothesis, 147–48, 608, 609
- Marxist archaeology, 432, 1109–10, 1151
- Mashwa, 107
- Massangana, 198
- Mastodonts, 33, 72, 433, 870
- Mata-Molle, 60
- Matraquero, 445, 446
- Matto Grosso, 170
- Mau complexes, 266, 269, 274, 276
- Maurica, 434, 442
- Mayo-Chinchipe Valley, 878–85, 901
- Maytas, 970
- Mazagão, 293, 298
- Megatheres, 433
- Meggers, Betty, 14
- Méidote, 205
- Memo, 441

- Memorandum of Understanding*, 1078–79, 1082
 Mérida, 451–52
 Mescaline, 687
 Mesoindian Period, 434–36
 Mesopotamia, 641–42
 Metallurgy, 419, 477, 598, 710, 711, 738, 876–77, 898, 899. *See also* specific metals
 Michelena, 436
 Middle Amazon region, 936
 Middle Formative Period
 Ecuadorian-Peruvian border during, 893–98
 Titicaca basin during, 549–53
 Middle Holocene Period, 245–49
 Middle Horizon Period
 Central Andes cultures in, 731–54 (*see also* Tiwanaku; Wari)
 Chachapoyas during, 911–13
 Middle Orinoquian culture, 429
 Migration, 1146
 of Andes communities, 671–78
 Tupi, 660–63
 Milagro-Quevedo chiefdom, 118
 Mina, 207, 211, 283, 365, 366
 Mina Perdida, 622, 643
 Minasta, 776
 Minchançaman, 783
 Mindalães, 530
 Miquimuoid culture, 452, 453
 Miracanguera, 362
 Mirinday, 451, 452f, 453, 454
 Mischiuen-1, 70
 Misión Santiago, 479
 Mit'a, 852
 Mitmaqkuna, 672, 848, 849
 Mitochondrial DNA analysis, 61, 932, 968
 Moche, 101, 572, 634, 636, 707–25, 731, 744–45, 799, 1040, 1077, 1085–86, 1149
 animal domestication and, 123
 collapses and reconfigurations of polities, 723–25
 human sacrifice and, 1051, 1053
 Northern, 718–22
 origins and development of states, 709–14
 source of social power, 714–15
 Southern, 715–18
 structure of society, 722–23
 Moche Valley, 615–16, 709, 714, 762, 787, 802, 1149
 Mochicas. *See* Moche
 Mocollope, 716
 Mocoral, 470
 Mojos. *See* Llanos de Mojos
 Molecular genetics, 1143–44
 Mollusks, 47, 81, 100, 148, 247, 248, 321, 890, 891
 Momil, 412, 413
 Mompos Depression, 118
 Monagrillo, 85–86, 407
 Money-axes, 509
 Mongoloid type, 32, 61
 Monjachaoq, 751
 Monsú, 407, 436
 Montagnes couronnées, 298
 Monte Carmelo mound, 343
 Montecristo Valley, 918
 Monte Curú funerary pit, 295f
 Monte Grande, 646
 Monte Hermoso-1, 245
 Monterrey, 769
 Montes de Oca, Carlos, 1079
 Monte Verde, 34, 39, 41, 61, 71–72, 112, 1142
 Montevideo, 1123
 Monumental architecture
 in the Central Andes region, 646–48
 at Chachapoya sites, 911
 at La Emerenciana, 892
 at Tiwanaku, 739–40, 745, 747
 Moon Animal, 798, 800, 801
 Moquegua Valley, 738, 739–40, 741, 743, 744, 749, 753
 Moraduchayuc, 750, 751, 753
 Morales, Evo, 1099, 1100
 Moreilla, 893, 908
 Moriche palm, 199
 Mother-of-pearl, 515, 871
 Mound of the Columns, 619
 Mounds. *See also* Aterros; Cerritos de indios
 Amazonian, 168–69
 of the Amazonian floodplain, 364, 365, 372
 Araquinooid and Barrancooid, 303–17
 at Argentinian sites, 591
 at Bahía, 496
 at Camutins sites, 343–54
 of Caranqui, 531–33
 at Chavín sites, 625, 626
 at Chimú sites, 795, 797
 at Chincha sites, 772
 at Cochabamba, 732
 at Ecuadorian-Peruvian border sites, 891, 899
 of the French Guiana coast, 218
 at Guayas Basin sites, 508
 at Guianas sites, 284–86, 288–89
 at Ica La Vieja, 773
 at Jama-Coaque, 494
 at Llanos de Mojos, 929, 930
 at Marajó Island, 339, 340–41, 343, 951
 at Nasca sites, 576, 577
 at northern Chilean sites, 966
 of the pampas and campos, 247–48
 at Peruvian sites, 609, 614, 618–20, 622, 623
 at Sinú, 409, 410, 413
 at Titicaca basin sites, 549, 551
 at Tiwanaku sites, 748, 1090
 at Tolita, 493
 at Tumaco, 390
 of the Upano River Valley, 263–77
 Moxeke, 616–21, 623
 Moxeque, 1150, 1151

- Moxos, 948
 Moy, 268
 Moyopampa Complex, 554
 Muaco, 432
 Muchique-1, 508
 Mucuchíes, 453
 Muiraitã, 292, 369
 Muisca, 392–96, 1104, 1105, 1106
 Multiple plaza sites, 274
 Mummies, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1036, 1040, 1041, 1042, 1144
 bandaged, 51, 53
 black, 50, 51–52
 at Central Andes sites, 650
 at Chachapoya sites, 918
 at Chinchorro sites, 45, 47, 49–50, 51–57, 1155
 corded, 51
 cuy, 125
 at Inca sites, 743, 827, 835, 836, 837, 1030
 mud-coated, 51, 53
 at Muisca, 395
 at Paracas Cavernas, 565
 at Paracas Necropolis, 568–69
 red, 50, 51, 52–53
 Mundurucú, 947, 1056
 Muscovy duck, 121–23
 Museo del Banco Central de Reserva, 1077, 1078
 Myth of the Noble Savage, 161, 164
 Myth of the Pristine Environment, 161, 178

 Nahuange, 419
 Nambillo, 474, 871
 Napo, 264
 Narihuala, 899
 Nasacoto Puente, 528
 Nasca, 15, 563, 572–82, 646
 religion, 577–79
 settlement patterns, 575–76
 socio-political organization, 576–77
 trophy head taking and, 1056–58
 National Archaeological Service (Colombia), 1107
 National Bolivian Museum, 1095
 National Ethnological Institute (NEI), 1107
 National Integrator of Descendants of American Indians (INDIA), 1124
 National Museum (Colombia), 1107, 1111
 National Museum of Rio de Janeiro, 1006
 National Program of Archaeological Research (PRONAPA), 1129
 National Research Council, 7
 National University of San Andrés, 1098
 Native Americans, 32
Native Peoples of South America (Steward and Faron), 3, 10, 11–12
 Nazca Valley, 743, 773–75
 Nebiñi, 417f

 Necropoli
 La Muña, 576
 Paracas, 564, 566f, 568–69, 570, 571
 Negativo del Carchi, 876
 Neo-environmental determinism, 101
 Neoindian Period, 436–54
 Neolithic Revolution, 186, 187, 638, 1149
 Nevados del Aconquija, 855
 New ecology, 160–61
 New Temple (Chavín de Huántar), 692, 696
 New wonders of the world list, 1076
 Nheengatu, 948
 Ni, 800
 Nickerie-2, 311, 313
 Ño Carlos, 435
 Nofurei, 199, 205
 Non-Mongoloid type, 32, 61
 Norte Chico. *See* Peruvian coast
 North Andes, 8, 15
 Northern Chile, 963–74
 Inca domination in, 963, 973–74
 Middle Horizon in, 732, 738
 Regional Development in, 970–72
 Northern Colombia, 405–24
 chiefdoms of, 406–18
 human colonization of, 418–24
 sedentism in, 79, 86–87, 88
 Northern pudu, 475
 North Patagonia, 59, 61–63, 71–72
 Northwestern Argentina, 587–601
 Early Period, 587–92
 Inca domination in, 845–60
 Late Period, 596–601
 Middle Period, 592–96
 Northwestern South America
 the natural setting, 79–80
 sedentism in, 79–88
 Northwestern Venezuela, 448–51
 Nudos, 527
 Nueva Cadiz, 443
 Nueva Era, 118, 472, 474, 871
 Nukak, 176, 192, 193, 202, 211
 Nuñamarca, 911
 Nutria Mansa, 245
 Nuts, 109

 Obispo, 443
 Obsidian, 97, 99, 135, 138, 141, 151
 at Central Andes sites, 646
 at Chachapoya sites, 908
 at Chavín de Huántar, 696
 at Chorrera sites, 470
 at Ecuadorian sites, 478, 870, 871, 872
 at Guangala, 499
 at Guayas Basin, 508
 at Loma Pucara, 476
 at Peruvian sites, 625
 at Valdivian sites, 464

- Obsidian (*cont.*)
 at Wanka, 771
 at Wari sites, 743
 Oca, 96, 107, 110, 112, 472, 474, 685
 Ocoña-Cotahuasi Valley, 738
 Oculate Being, 564, 572
 Ocumare, 444
 Ofrendas Gallery, 688
 Oje, 740
 Ojo de Agua, 448
 Old Coastal Plain (OCP), 303, 304f
 Old Temple (Chavín de Huántar), 693
 Ollantaytambo, 821
 Olluco, 96
 Omagua, 97
 Omaporco, 852, 855
 Omo, 739, 749
 Opossum, 472
 Optimal foraging evolutionary theory, 191–93
 Oranges, 1008
 Orcosuyu, 823
 Ordinance IPHAN #230, 1130
 Orinoco basin, 436–40
 Orthogonal architecture, 646, 648–50, 738, 739,
 742, 743, 744, 750, 753
 Oruro, 989
 Osteoporosis, 48
 Osvaldo, 205
 Otavalango, Don, 528
 Otavalo, 528
 Otomac, 229

 Pa'Aljano, 553
 Pabellón, 913
 Paca, 472
 Pacae, 109, 116
 Pacajes, 823
 Pacatnamú, 649, 712, 720, 723, 1052, 1055
 Pacaycasa, 1142
 Pachacamac, 648, 649f, 650, 743, 768, 769, 770,
 811, 817, 837, 1048
 Pachacuti, 672, 812–13
 Pachamachay, 37, 133, 134, 137, 138, 140
 Pachamama, 548, 1099
 Pacioca, 858
 Packrat middens, 97
 Pacopampa, 697–98, 895, 896
 Paiján, 34, 36f, 38–39, 40, 41, 42, 148–49
 Paita, 893, 894, 895
 Paituna, 207
 Pajchiri, 740
 Pajonal Alto, 775
 Palace of Multicolored Rooms, 749
 Palaces, 749, 752, 817, 825–26
 Paleolama, 33
 Paleolithic, 279–82
 Pali Aike Lava Field, 60, 67, 68f
 Palikur, 229, 230, 231, 301, 371
 Pallka, 626, 697
 Palmasola, 444–45
 Palm nuts, 1120
 Palms, 248, 362–63, 470
 burití, 176, 1007
 butiá, 247
 chonta, 423, 917
 ivory-nut, 423
 macaw, 1145
 peach, 369, 937
 pindó, 253
 sacurí, 196
 tucumã, 196
 Palpa Valley, 571
 Palta, 264, 528
 Pampa de Flores, 769
 Pampa de las Llamas-Moxeke, 616–21, 626, 638,
 643, 644, 646
 Pampa Grande, 649, 719, 720, 724, 744
 Pampa Río Seco, 787
 Pampa Rosario, 626
 Pampas, 235–56, 1140
 early peopling, 236–45
 environment, 235–36
 Panama, 79, 84–86, 88, 123
 Pananche, 891
 Panaulauca, 128, 140
 Pancha, 552
 Pandanche, 893, 908
 Panecillo, 896f, 897
 Panoan, 932
 Pantanal, 168, 169, 174
 Panzaleo, 528, 875
 Panzenú, 408, 413
 Papaya de monte, 109
 Paracas, 15, 563–72, 581, 582, 646, 1033, 1034f,
 1040, 1153
 Paracas Cavernas, 564, 565–68, 569
 Paracas Necropolis, 564, 566f, 568–69,
 570, 571
 Paramo, 118
 Paramó de Peña Negra I, 110
 Paramonga, 770, 797
 Paranaíba, 34, 39
 Pareci, 953
 Paredão, 367
 Paredones, 899
 Pariacaca, 1033
 Parque Nacional da Serra Capivara, 1132
 Paruro, 814
 Paso Alsina-1, 250
 Paso Otero-1, 245
 Paso Otero-3, 245
 Paso Otero-5, 237
 Pastaza, 264, 479
 Pasto, 528

- Patagonia, 59–73
 human remains in, 60–61
 North, 59, 61–63, 71–72
 South, 59, 63–71, 72
- Pátapo, 796
- Patillos, 51
- Patrimony, 1152, 1154
 Brazil and, 1131–32
 Colombia and, 1110–11
 Peru and, 1073, 1079
- Patrón Samana, 916
- Pay Paso, 237
- Payra, 268, 274
- Peabody Museum, 1108
- Peanuts, 107, 110, 113, 116, 932
- Peccary, 244, 470, 1008
- Pechiche, 894–95
- Pedra Furada, 1142
- Pedro García, 435
- Peer politics, 697–700, 745
- Pelón, 766
- Peña Roja, 198–204, 205–6, 208, 211, 363
- Peñas Blancas, 597
- Peñón del Río, 118, 123, 509
- Peopling, 1142–44. *See also* Human occupation;
 Settlement patterns
 of Guianas sites, 279–82
 of the pampas and campos, 236–45
 of Venezuela, 432–34
- Pepero, 109
- Peppers, 607, 965
- Persistent leadership, 140–41
- Peru, 17–18, 1147, 1149, 1153
 animal domestication in, 123, 124, 125–26, 127
 coast of (*see* Peruvian coast)
 Cultural Heritage Management in, 1073–87
 (*see also* Cultural Heritage Management)
 Ecuadorian border region (*see* Ecuadorian-
 Peruvian border)
 Ecuador's conflict with, 1068
 fishing sites in, 145, 146–50
 Middle Horizon in, 732, 738
 plant domestication in, 110–12
- Perú, Vaimaca, 1124
- Peru Before the Incas* (Lanning), 146
- Peruvia, 316–17
- Peruvian coast, 607–14
 central, 621–22
 in Early Horizon, 622–27
 in Initial Period, 614–22
 in Late Pre-Ceramic, 607–14
 norte chico, 15, 611, 627, 633
 plant domestication in, 113–16
 regional cultures on south, 563–85
- Petroglyphs, 282
- Pica-8, 983
- Pichao, 598
- Picoaza, 510, 512–14
- Pikillacta, 639f, 648, 741–42, 775
- Pikimachay, 128, 135
- Piliwa, 223f, 224f, 231
- Pinagua Capac, 811
- Piñami, 740
- Pineapples, 342
- Pintada Subtradition, 660
- Piquigua, 464–66, 470
- Pires de Campos, Antonio, 953–54
- Pirincay, 276, 477, 478, 872, 885, 893, 898
- Pirka-Pirka, 912
- Pisagua Viejo, 47
- Pisco Valley, 564, 566, 571, 743, 772
- Pishaus, 1111
- Pisquillo Chico, 767–68
- Pitomba seed, 196
- Piura Valley, 18, 718, 762, 891, 894, 897, 899, 901
- Pizarro, Francisco, 121, 510–11, 514
- Pizzulic, 70
- Plan Estratégico Nacional de Turismo (Pentur),
 1081, 1085, 1086
- Plant domestication, 867, 1145, 1146, 1147
 in the Andes, 109–19
 at Cerro Mangote, 85
 early record of, 110–13
 in northern Colombia, 407
 Pleistocene, 39
- Playa Bonita, 448
- Playa Chinchorro-Las Machas, 47
- Playa de San Luis, 265
- Playa Guacuco, 443
- Playa Miller, 51, 835, 837, 973
- Plaza del Hombre Americano, 1096
- Pleistocene, 29–43. *See also* Late Pleistocene
 chronology, 32–34
 climate, 32–34
 environments, 32–34
 foragers of, 34–40
 occupation, complexity, social organization,
 40–43
- Plumed Headdress Deity, 798, 800, 801
- Pocó, 370
- Pocó-Bõa Vista, 205
- Pocoma, 972
- Pojoc, 697
- Politics
 of Chavín de Huántar, 697–700
 of early Regional Ecuadorian coast, 489–502
 of late pre-Hispanic Ecuadorian coast, 505–19
 Moche, 723–25
 peer, 697–700, 745
- Polychrome Tradition, 185, 205, 206f, 365, 366,
 743, 947, 949, 951, 1146
 at Amazonian floodplain sites, 367–69,
 370, 372
 at Guangala, 498f, 499

- Polychrome Tradition (*cont.*)
 at Guianas sites, 293, 298
 at Nasca sites, 572, 582
 at northern Chilean sites, 970
 at Tupi sites, 665, 666f
 at Venezuelan sites, 432, 437
- Pomacayan, 697
- Ponce Monolith, 736, 737f
- Ponce Sanjines, Carlos, 1090, 1091, 1096–97
- Ponds, 227
- Ponta das Pedras, 207
- Population
 at Alto Magdalena, 385
 at Amazonian floodplain sites, 371
 at Calima, 392
 at Chachapoya sites, 917
 at Ciudad Perdida, 423
 of high elevation foraging societies, 136
 at Sierra Nevada de Santa Marta, 419
 at Tierradentro, 388
 at Tiwanaku sites, 745, 748, 753
 at Venezuelan sites, 433
 at Wanka, 771
 at Wari sites, 750–51, 753
- Porrás, 268, 274
- Portachuelo de Charcape, 720, 725
- Porta da Mina, 207
- Posnansky, Arthur, 1092, 1093–96
- Potatoes, 96, 107, 110, 112, 116, 117, 118, 382, 423, 472, 474, 534, 545, 589, 685, 696.
See also Tubers
 sweet potatoes, 105, 110, 113, 116, 224, 255, 382, 423, 610, 1147
- Potosí, 990
- Potrerrillo, 248
- Potrero Chaquiago, 852
- Potrero de Payogasta, 852
- Pottery. *See* Ceramics/pottery
- Pre-Ceramic Period
 Chachapoyas during, 907–8
 Ecuadorian-Peruvian border region in, 890–91
 Peruvian coast during, 607–14
- Precipitation
 in the Central Andes, 96
 in Ciudad Perdida, 419
 in Llanos de Mojos, 928, 929
 in Marajó Island, 342
 in Sierra Nevada de Santa Marta, 414
 in southwestern Colombia, 382
- Pre-Columbian Period
 Ecuadorian-Peruvian border region in, 899–901
 Upano River Valley mound complexes
 of, 263–77
- Prehistoria Sudamericana, Nuevas Perspectivas*
 (Meggers), 14
- Prehistory Commission (Brazil), 1128–29
- Preservation, 1152–54
- Pre-Upano Period, 479
- Priestess burials, 720, 721f, 722
- Primary burials, 250, 289, 315, 317, 349
- Prins Bernhard Polder, 231, 289, 310, 311, 312–13, 317
- Profile Attendants, 734, 735, 736, 752
- Programa Nacional de Pesquisas
 Arqueológicas, 322
- Projectile points, 137–38
 at Amazonian sites, 198, 363
 at Chachapoya sites, 907, 908
 at Clovis sites, 1142
 fishtail, 34, 40, 41, 237, 242f
 at Guianas sites, 282
 at Loma Pucara, 476
 at pampas and campos sites, 237, 239, 242f, 245, 246, 247, 249, 251
 at Patagonian sites, 61, 63, 65
 at Tiwanaku sites, 738
 at Venezuelan sites, 433
 at Wari sites, 743
- Protein limitation hypothesis, 163–64
- Protoagriculture, 436
- Proto-Arawakan linguistic stock, 432
- Proto-Archaic foragers, 33
- Proto-Tupi culture, 661, 663, 665
- Providencia, 269
- Proyecto Agro-Arqueológico del Beni
 (PAAB), 932
- Pseudocereals, 107
- Psychotropic substances, 692, 876. *See also* Drug paraphernalia; Hallucinogens
- Public architecture
 in the Central Andes region, 640, 643–50
 at Chavín de Huántar, 683
 at Tiwanaku sites, 745–46
 at Wari sites, 738, 742
- Pucara, 736, 745
- Pucará de Tilcara, 597, 598, 600f, 849
- Pucara Provincial, 736
- Pucas/pukaras, 533–34, 537, 539, 970–71
- Pueblito, 419
- Pueblo Viejo, 575, 768
- Puente, 133, 134
- Puente Cave, 125
- Puente del Diablo, 112
- Puerto Ayacucho, 439
- Puerto Cabello, 444–45
- Puerto Chacho, 407
- Puerto Estrella, 454
- Puerto Hormiga, 86, 370, 407, 436
- Puerto Supe, 770
- Puerto Tranquilo, 63
- Pukara, 549, 552–53, 554–55, 556, 557, 855, 1040
- Pukara Quito, 972
- Pukaras. *See* Pucas/pukaras
- Pukarumi, 917
- Pukina, 549
- Pukuro-Uyu, 740

- Pululahua Volcano, 471, 472, 474, 508
 Puma, 64
 Pumahuanchina, 911
 Pumapuncu, 747, 748, 749, 1090
 Pumpkin, 589
 Pumpú, 817
 Pumpuentsa, 479
 Puna, 95, 96, 984, 985
 Puná Island, 464, 506, 509
 Punkurí, 623
 Punta Arenas, 442
 Punta Bustamante, 67
 Punta de San Luis, 248
 Punta Lobos, 1053–55
 Punta Santa Ana, 70
 Punto Fijo, 446, 447
 Puquios, 581–82
 Puripica-1, 133, 134, 138–39, 140
 Purisa, 971
 Puruchuco, 823, 835, 837
 Puruhá, 528, 535–38
 Purun Llaqta de Cheto, 913, 918
 Putuni, 747, 1090
 Putushío, 477, 478, 876–77
 Pyramidal mounds, 532
 Pyramids, 1149, 1151
 at Akapana, 746, 747–48, 749
 in the Central Andes region, 635, 643, 650
 at Chavín de Huántar, 686f, 687, 688–89, 693, 694
 at Chimú sites, 793–94
 at Moche sites, 745
 at Rímac and Lurín, 768–69
 at Sinú, 410

 Qaluyu, 549, 553
 Qhapac Ñan project, 1086–87
 Qhapaq hucha, 827, 1048
 Qhapaq ñan, 816, 821, 825. *See also* Highways
 QJ-280, 150
 Qochas, 556
 Qollasuyu, 817, 819, 825
 Quadrilateral mounds, 531
 Quebrada de Camarones, 47
 Quebrada de Humahuaca, 849, 989, 993
 Quebrada de Inca Cave, 112
 Quebrada de las Conchas, 38, 148, 152. *See also*
 La Chimba-13
 Quebrada de Las Pircas, 110, 112, 113
 Quebrada de los Burros, 38, 46
 Quebrada Jaguay, 99, 100, 135, 150–51, 152f
 Quebrada San Andrés, 388
 Quebrada Santa Cristina, 792
 Quebrada Seca-3, 112
 Quebradas Jaguay, 153, 154
 Quebrada Tacahuay, 45, 100, 152, 153, 154, 1144
 Quebrada Tarapacá, 968
 Quechua, 96, 549, 766, 910

 Quiani, 47, 53–54, 112
 Quíbor Valley, 448–50
 Quilago, Queen, 1067–68
 Quillagua, 983, 993
 Quilmes, 597, 598, 849
 Quilombos, 1130
 Quimbaya, 15, 396, 501
 Quimsachata Mountain, 746–47, 748
 Quinoa, 96, 107, 110, 112, 113, 116, 117, 472, 474, 536, 589, 685, 965
 Quispisisa, 138
 Quito, 817
 Quito, 968, 970

 Rabbits, 472, 475
 Radiocarbon dating
 of Amotape, 148
 of Buckleburg, 307
 of Caral, 610, 611
 of Caranqui sites, 531
 of Caverna da Pedra Pintada, 194
 of Cerro Mangote, 84
 of Chachapoya sites, 908, 910, 912, 913, 921
 of Chimú sites, 789
 of Ciudad Perdida, 423
 Clovis First argument and, 1142–43, 1144
 of Ecuadorian sites, 872
 of El Paraíso, 622
 of Guianas sites, 288
 of Inca sites, 816
 of Isla Larga, 1121
 of Jama-Coaque, 508
 of khipu, 837
 of La Chimba, 474
 of La Emerenciana, 892
 of Manachaqui, 891
 of Marajó Island sites, 340
 of pampas and campos sites, 236, 245, 248
 of Patagonian sites, 60, 63, 64, 65, 66, 70, 73
 of Peruvian sites, 609, 614
 of Puerto Hormiga, 436
 of Punta Lobos, 1055
 of sambaquis, 321, 322, 324
 of Santa Ana-La Florida, 480, 880t
 of Siche, 890
 of Suriname coast sites, 311
 of Tiwanaku sites, 1090
 of Venezuelan sites, 433
 Rainfall. *See* Precipitation
 Rain forests, 160, 161, 162, 194, 869
 of the Guianas, 279
 of northern Colombia, 415–18
 of upper Buritaca, 423, 424
 Raised fields, 163, 1148
 in Amazonia, 171–72
 in the Andes, 116, 117
 at Calima, 390–91, 398
 at Caranqui sites, 534

- Raised fields (*cont.*)
 in the Central Andes, 101
 at Chimú sites, 792
 demographic issues, 230–31
 ethnographic perspectives, 227–29
 on the French Guiana coast, 217, 218, 219–26,
 227–29, 230–32
 at the Guayas Basin, 508–9
 in the Guianas, 279, 289
 historic perspective on farmers, 229
 at Llanos de Mojos, 929, 930, 931f, 933, 934,
 935, 937
 at the Suriname coast, 306–7
 at Titicaca basin sites, 117, 556, 745
- Ramaditas, 965
- Ranchoid Tradition, 454
- Rancho Peludo, 454
- Rank society, 1139, 1148, 1149, 1155
- Raqchi, 817
- Rayed Face/Head, 734, 736
- Real Alto, 110, 463–64, 870
- Reappraisal of Peruvian Archaeology*,
 A (Bennett), 10
- Rectangular structures, 685, 688, 741–42, 743–44,
 751, 752, 818, 916, 918, 965
- Recuay, 15, 685, 708, 1035, 1036f, 1038, 1039,
 1040, 1041, 1042
- Red-and-Black Ware ceramics, 477
- Red-on-Cream Ware ceramics, 477, 478
- Reducción, 920, 1032, 1104
- Regional Development Period
 Ecuadorian coast polities of, 489–502
 northern Chile during, 970–72
- Regional diversification, 15
- Regional Florescent (cross-cultural type), 10
- Reichel-Domatoff, Gerardo, 1108
- Relación de Samano-Xerez*, 514–15
- Religion. *See also* Shamanism and shamans
 of Caranqui, 532–33
 of Central Andean cultures, 731–32
 of Chavín, 623, 624–25
 at Chavín de Huántar, 681–82, 683–90, 693–95
 of Chimú, 798–801, 802
 of Incas, 734–35, 826–27
 of Moche, 725
 of Nasca, 577–79
 of Paracas, 564, 571–72
 at Titicaca basin sites, 556
 of Wari and Tiwanaku, 734–37
- Remanso, 482
- Remigio, 435
- Residential strategies, 37, 38
- Resource management, 160
- Reticular complementarity, 984
- Rhea, 246, 249, 250
- Rhisomes, 248
- Ribeiro, Darcy, 13
- Rice, 1007
- Ridged fields, 117, 410–12
- Rikbatsa, 947
- Rímac Valley, 615, 621, 622, 767, 768–69, 1149
- Rincón Chico, 598
- Ring ditch sites, 170–71
- Ring Site, 46, 148, 149f, 150, 153
- Río Chico, 443
- Río Grande de Nazca drainage, 572, 575, 1057
- Río Guapo, 443
- Río Huenque drainage, 137
- Río llave drainage, 136, 137–38
- Río Loa, 983, 994, 995
- Río Moquegua drainage, 135, 136, 137, 138,
 139, 140
- Río Pinturas, 65
- Río Salado Depression, 252, 254
- Río Santa, 137
- Río Seco, 609
- Rivera, Bernabé, 1124
- Rivero, 784
- Rivet, Paul, 1107, 1108, 1128
- Roads, 742, 772–73, 816, 918
- Rocha do Antônio, 1009
- Rock paintings, 63, 251–52, 589
- Rock shelters, 32, 35f, 37, 125, 128, 134, 198
 in the Guianas, 294–95
 of the pampas and campos, 237, 242f, 244
 of Patagonia, 67
- Rondônia, 947
- Ronquín, 437, 438, 440
- Ronquín Sombra Phase, 438
- Roots, 105–6, 107
- Rosamachay, 125
- Rowe seriation, 623, 625
- RS-S-327 Sangão, 244
- RS-TQ-58 Garibaldino, 244
- Ruinenstätte von Tiahuanaco, Die* (Squier
 and Uhle), 1092
- Rupa-rupa, 97
- Sabana de Bogotá, 117
- Sacred Valley, 814
- Sacrifice. *See* Animal sacrifice; Human sacrifice
- Sacrifice Ceremony, 720, 724
- SAIS. *See* Southern Andean Iconographic Series
- Saladero, 432, 437, 439
- Saladoid Tradition, 210
 at Guianas sites, 284, 285f
 at Suriname coast sites, 309, 316
 at Venezuelan sites, 429, 432, 437, 438, 439, 440
- Salango, 123, 499
- Salangome, 510, 514–16
- Salinar, 707, 710, 713, 898, 899
- Salinas de Chao, 609, 643
- Salinas de Tomavela, 536
- Salt, 393, 408, 419, 423, 516, 535, 537, 539,
 550, 866, 871
- Salto Grande, 1119

- Sambaqui da Figuerinha, 320f
 Sambaquí do Uruá, 207
 Sambaquis, 168, 283, 319–31, 1155
 demography, 324–27
 end of era, 327
 research trends, 321–24
 in space and time, 320–21
 San Agustín, 15, 383–87, 1040, 1105
 San Cristóbal, 451
 San Felipe, 450
 San Fernando, 445
 Sangay, 168, 266, 364. *See also* Huapula Complex
 Sangay Volcano, 265, 266, 274
 San Genaro-4, 71f
 San Gerónimo, 454
 San Idelfonso, 720, 722, 724, 725
 San Isidro, 110, 112, 464, 470, 482, 494, 870, 885
 San Jacinto, 85, 86–87, 112, 212, 370, 407, 412–13
 San José de Moro, 709, 713, 720, 722, 723, 724–25, 742, 743
 San Lorenzo, 37, 971
 San Lorenzo del Mate, 466
 San Miguel, 971
 San Nicolás, 453
 San Pablo, 444, 445, 450
 San Pedro I, 968
 San Pedro II, 968
 San Pedro III, 972
 San Pedro de Atacama, 732, 738, 964, 970, 972, 979–96. *See also* Atacama Desert
 consumption patterns, 993–95
 Inca domination in, 973, 991
 similarities and differences in complexes, 984–88
 social fields in, 981–82, 984–88, 993, 996
 San Pedro Viejo Pichasca, 112
 San Sebastian, 536
 Santa Ana culture, 451, 452f, 453
 Santa Ana-La Florida, 480, 482, 483, 878–85, 892, 893
 Santa Delia, 765
 Santa Elena Peninsula, 506, 509–10, 867, 869–70
 Santamariana, 993
 Santarém, 166, 306, 370–71, 372, 950, 951–52
 Santa Rosa, 268, 274
 Santiago-Cayapas Basin, 506
 Santiago de Huatta Peninsula, 549, 551, 554, 555
 Santinho, 1132
 Santo Inácio, 1128
 Saraguro, 265
 Sarare, 448
 Sauzalito, 112
 Saving Antiquities for Everyone (SAFE), 1082
 Saxamar, 971, 973
 Schaden, Egon, 1128
 Scientific racism, 1092
 Sculpture
 at Alto Magdalena, 383–84
 at Chachapoya sites, 911
 at Chavín de Huántar, 682, 690–92
 at Tierradentro, 388
 Seals, 247
 Seating rituals, 518
 Sea voyaging, 464
 Sechín Alto, 616–21, 626, 627, 1151
 Sechín Bajo, 616, 621
 Sechura, 897, 899
 Secondary burials, 138, 140
 at Calima, 392
 at Camutins sites, 349
 at Chinchorro sites, 51
 at Guianas sites, 289, 292, 294
 at Maracá, 1009, 1021–22
 at pampas and campos sites, 247, 250
 at Peruvia, 317
 in sambaquis, 326
 at Suriname coast sites, 315
 at Tierradentro, 389f
 Sedentism, 1145, 1147. *See also* Semi-sedentism
 Chinchorros and, 47–50
 in Ecuadorian-Peruvian border region, 891, 892
 at Guianas sites, 283–84
 in northwestern South America, 79–88
 Pleistocene, 42
 Sedge, 470
 Seje palm seeds, 199
 Selva alta, 264
 Selva baja, 264
 Semi-sedentism, 1145
 in Ecuadorian-Peruvian border region, 891
 of Guianas fishermen-gatherers, 279, 283
 of Initial Ceramic fisher-folks, 207–8
 Pleistocene, 40, 42
 Semi-subterranean Temple, 747, 748, 749, 753, 1097
 Sendero Luminoso, 683
 Seno Reloncavi, 71
 Sepik Coast, 996
 Sepultura de Diablo, 409
 Serrania de San Lucas, 408
 Serro do Laranjal, 1009
 Serviço Histórico e Artístico Nacional (SHAN), 1128, 1129
 Settlement patterns. *See also* Human occupation; Peopling
 of Camutins, 344–47
 of Cañari, 539–40
 of Caranqui, 531
 of Chachapoya, 910–11
 of Nasca, 575–76
 of Paracas, 569–71
 of Puruhá, 536–37

- Shamanism and shamans, 1099
 at Alto Magdalena, 384
 at Chachapoya sites, 917
 at Ecuadorian sites, 875, 876, 884
 at Maracá, 1023
 at Nasca sites, 577, 578–79
 at Titicaca basin, 554
 at Tiwanaku sites, 749
- Shavante, 81
- Shellfish, 283, 305, 322, 462, 616, 869
- Shell middens, 148, 207, 208, 1128, 1129. *See also*
 Sambaquis
 Chinchorro, 47
 in Guianas, 283
 of the pampas and campos, 247
 in Venezuela, 434–35
- Shincal, 852, 853, 855, 859
- Shrunken heads (tsantsas), 1055
- Shuar, 266, 274
- Shubalula, 539
- Si, 800
- SIAR, 784, 786
- Sicán, 762, 765, 767, 776–77, 1085
- Sicán-Bátan Grande, 650
- Sicarigua, 448
- Siche, 890–91
- Siches Complex, 110
- Sierra Nevada de Santa Marta (SNSM),
 1111, 1151
 chiefdoms of, 407–8, 413–18
 colonization of, 418–24
- Sihuas Valley, 738
- Sillumocco, 554
- Sillumocco-Huaquina, 549
- Silver, 509, 537, 625, 965, 966, 967
- Simon, Pedro, 408, 410
- Sinai, 269
- Sinchi Roca, 1032–33
- Single plaza sites, 273–74
- Sinú, 406, 407–13
- Siona-Secoya, 230
- Sipaliwini, 282
- Sipán, 709, 712, 719, 722, 745, 1051, 1077, 1081,
 1085, 1149, 1153
- Siriono, 937
- Sitio Conte, 123
- Sitio Sierra, 123
- Skull deformation, 571, 577
- Slash-and-burn agriculture, 171, 430
 in Amazonia, 162–63, 176, 187–88, 204, 205,
 206, 208
 on the French Guiana coast, 229, 230, 231, 232
 in the Guianas, 279, 283, 290
 at Monagrillo, 85
- Slash and char agriculture, 171
- Slavery, 300, 530, 1120, 1130
- Sobraya, 966
- Socaire, 974
- Social evolution, 1139–41
- Social fields, 981–82, 984–88, 993, 996
- Social inequality. *See also* Specialization and social
 differentiation
 at Argentinian sites, 596–98
 at Chavín de Huántar, 696
 in high elevation foraging societies, 140–41
- Social organization. *See also* Socio-political
 organization
 of Chimú, 797–98
 of Chinchorro, 54–56
 in high elevation foraging societies, 137–38
 of Moche, 722–23
 Pleistocene, 40–43
- Social Science Research Council (SSRC), 7, 16
- Sociedad Amigos de la Arqueología, 1119
- Sociedade Brasileira de Belas Artes, 1127
- Society for American Archaeology, 20, 1154
- Socio-political organization. *See also* Social
 organization
 of Cañari, 538–39
 of Caranqui, 528–30
 at Llanos de Mojos, 933–34
 of Nasca, 576–77
 at Paracas, 571
 of Puruhá, 536
- Solcor, 675, 970
- Solor, 972
- Sonaje, 554
- Sondondo Valley, 742–43, 744
- Soursop, 116
- South American Archaeology* (Joyce), 11
- South American ostrich, 63, 65
- South-central Andes, 980f, 983–88
- Southern Andean Iconographic Series (SAIS),
 732, 738, 739, 743, 747, 748, 752
 disappearance of, 753
 pantheon of, 734–37
- Southern Andean people, 9
- Southern Andes, 8, 845–60. *See also* Incas
- Southern Cone. *See* Patagonia
- Southern periphery of Amazonia, 953–58
- South Patagonia, 59, 63–71, 72
- Southwestern Colombia, 381–98, 1140. *See also*
 Alto Magdalena; Calima; Muisca;
 Tierradentro; Tumaco
- Spanish conquest and occupation, 229, 381, 511,
 761, 762, 1027, 1030, 1031–32, 1035,
 1048, 1050, 1055, 1069–70, 1153
 at Alto Magdalena, 387
 in Argentina, 596
 at Calima, 392
 Chachapoyas and, 904, 916–17, 920–21
 Chimú and, 801
 at Ciudad Perdida, 423–24
 Colombia independence from, 1103–6
 Incas and, 825, 838, 845, 858–59
 at Muisca, 395

- Spanish conquest and occupation (*cont.*)
 outstanding cultures at, 8
 at Sinú, 410
 at Tierradentro, 388
 at Tiwanaku, 1090, 1091–92
 at Tumaco, 390
- Specialization and social differentiation. *See also*
 Social inequality
 of Cañari, 540
 in Caranqui, 535
 in Puruhá, 537–38
- Specialized regional economy, 245
- Spices, 109
- Spondylolysis, 48
- Spondylus* shell, 3, 129, 470, 479, 489, 508,
 516, 519, 625, 646, 692, 696, 698, 718,
 792, 796, 823, 871, 872, 881, 893,
 895, 918
- Squash, 39, 82, 108, 110, 112, 113, 116, 118, 140,
 148, 248, 382, 390, 787, 891, 1145
 at Ecuadorian sites, 470, 870
 at northern Chilean sites, 965
 at Peruvian sites, 607, 610
 at Uruguayan sites, 1121
- Squier, 784, 797
- Staff God, 734–35, 736, 798, 799–800, 801, 802,
 1093, 1095
- Standard Model, 186–87
- State government, 10, 12, 160, 1139, 1148–49
- Steppe, 59, 60f, 61, 63, 72
- Steward, Julian H., 3–7, 8–9, 10–12, 13, 14, 16,
 18–19
- Stone seats, 511–12, 513f, 514f, 516
- Strombus* shell, 687, 688, 692, 796, 871, 879, 885
- Sub-Andean people, 9
- Subienda, 411
- Succession theory, 160, 161
- Sucre coast mangroves, 435
- Sugar apple, 205
- Suitococha culture, 910
- Suni, 96
- Sunken courts, 549, 618, 620, 622, 739
- Sunken enclosures, 548, 551, 554, 556f
- Sunken plazas, 610, 611–12, 626, 643, 685
- Supe Valley, 770, 1150–51
- Suriname, 217, 220, 227, 228, 229, 231, 279, 283,
 284, 288, 292, 293, 298, 299
- Suriname coast, 303–17
 human occupation in, 305
 landscape, 303–5
 raised fields of, 306–7
- Sustainability, 178
- Suta, 393, 394
- Sweet potatoes. *See* Potatoes
- Switzerland, 1079
- Tabaré* (Zorrilla de San Martín), 1116
- Tabay, 451–52
- Tablada de Lurín, 768
- Taborda, 444
- Tabuchila, 468, 469, 470, 475
- Tacahuay, 38
- Tacana, 898
- Tacanan language, 932
- Tachina, 468
- Táchira, 452
- Tafí, 590, 593
- Tagua Tagua, 1142
- Tahuantinsuyu, 1065
- Taima Taima, 432, 433, 1142, 1143, 1144
- Tairona, 406, 407–8, 413–18, 501
- Tairona Park, 414, 415, 418, 419–24
- Talambo, 789
- Talara, 148
- Talareños, 148
- Tallán, 899, 900f, 901
- Taltal, 968, 972
- Taltape, 993
- Tamarindo, 899
- Tamayo, Franz, 1095
- Tambo de Mala, 817
- Tampu Eje, 917
- Tampukuna, 816, 821
- Tandilia area sites, 34, 236, 237, 240–41t, 245, 251
- Tangani, 971
- Tangas, 349, 351, 353–54
- Tantarica, 765
- Tapajó, 294, 370, 951–52
- Tapera Moreira, 245, 249, 254
- Taperinha, 198, 207, 211, 283, 363, 365–66
- Tapestry, 738, 743, 744, 912f, 913
- Tapeworm, 47
- Tapir, 244, 1008
- Taquara, 254, 321
- Taraco Archaeological Project, 548, 553, 557
- Taraco Peninsula, 549, 551, 553, 554, 745
- Tarama, 770, 771–72
- Tarapacá, 112, 964, 965, 985, 995
- Tarata, 117
- Tarhui, 96
- Tarija, 989, 990, 993
- Tarucas, 139
- Tarumã, 196
- Tarwi, 107, 685
- Tastil, 597, 598
- Taukachi-Konkán, 616, 618, 619, 620, 621, 643
- Tawantinsuyu, 825–27, 845, 846, 848, 849
 remembering, 858–59
 territory of, 810f
- Taycanamo. *See* Chimo Capac
- Tayos, 264
- Tebenquiche, 590
- Tecoaba, 665
- Teeth/dentition, 323, 675, 676, 677
- Tejar, 490
- Tekohá, 665

- Telarmachay, 37, 128, 133, 134, 137
 Tello, 784
 Tello Obelisk, 683
 Temple of the Mythical Bird, 794–95
 Temple of the Sun, 770, 1042
 Tenon heads, 688, 689f, 1035, 1037f
 Teotihuacán, 636, 675
 Tequendama, 36f, 125, 1143
 Terena, 953
 Terracing, 163
 in the Andes, 116–17
 in the Central Andes, 101
 at Chachapoya sites, 914
 at Ciudad Perdida, 419–22
 at Inca sites, 818
 at Wari sites, 742, 745, 753
 Terra firme, 430, 1009
 Terra mulata, 171, 369, 952, 953
 Terra preta, 171, 188, 189, 198, 307, 317, 952, 1009
 Terra Preta da Conceição, 1009
 Terra project, 1076
 Terra reta, 289
 Teso dos Bichos, 349
 Textiles
 ancestor veneration and, 1041–42
 at Chachapoya sites, 913
 at Inca sites, 823
 at Muisca, 393
 at Nasca sites, 576
 at Paracas, 563–64, 572
 at Paracas Necropolis, 566f, 568–69
 at San Pedro de Atacama, 985
 at Tiwanaku sites, 674, 967, 968, 969
 at Wanka, 771
 Teya, 913
 Thémire, 288, 289, 292–93, 300, 316
 Theocratic chiefdoms, 953
 Thermoluminescence dating, 870, 872
 Thin Orange ceramics, 873
 Tiahuanaco, 1149. *See also* Tiwanaku
 Huari cross-dated with, 734–37
 life and culture in, 744–53
 Tiaone, 490, 494
 Tierra del Fuego, 59, 61, 69–70, 72, 73
 Tierra de los Indios, 448
 Tierradentro, 388, 389f, 390, 397, 1105
 Tiguasú, 393
 Ti-Jarre cavity, 300
 Tijerales, 769
 Tiliviche, 37, 112
 Timbambo, 913, 914
 Tingiholo, 317
 Tipón, 776
 Titicaca basin, 117, 545–58, 993
 Early Formative, 548
 Late Formative, 553–57
 Middle Formative, 549–53
 Tivacundo, 264
 Tiwanaku, 14, 15, 117, 131, 672, 677, 731–54, 934, 935, 963, 974, 1089, 1141, 1148, 1152. *See also* Bennett Monolith;
 Tiahuanaco
 Aymara takeover of, 1098
 background on site and state of, 1090–91
 civic center of, 746f
 colonization of, 674–76
 descriptions of, 1091–92
 expansion of, 553–57
 human sacrifice at, 1048–49
 influence in northern Chile, 966–70
 San Pedro de Atacama and, 981, 988, 990, 991, 993, 994, 995–96
 style diffusion and political unification, 738–44
Tiwanaku: The Cradle of American Man
 (Posnansky), 1094
 Tobacco, 350, 876
 Tocay Capac, 811
 Toconce, 983
 Toconce Mallku Complex, 972
 Tocuyano Tradition, 429, 436, 448, 449f, 450, 453
 Tolas, 531–32, 533
 Toldense, 65
 Tolita, 15, 490, 492–94, 500, 506, 873, 876, 885, 899
 Tolombón, 598
 Tomala, 509
 Tomatoes, 109
 Tomepanda, 895
 Tools
 at Amazonian sites, 198
 of Caverna da Pedra Pintada, 194, 196f
 at Chavín de Huántar, 696
 at Cotacollao, 472
 at Ecuadorian-Peruvian border sites, 890
 at Ecuadorian sites, 870
 at Guangala, 499
 at Guianas sites, 282, 291
 at Loma Pucara, 476
 at pampas and campos sites, 237–39, 245
 at Peña Roja, 199–202, 205–6
 Pleistocene, 34–37
 at Venezuelan sites, 433
 at Wari sites, 738
 Topa Inca Yupanqui, 509, 519, 783, 916, 917
 Topará, 564, 569, 570, 571, 646
 Topater, 983
 Topo, 443
 Toquepala, 133, 134, 908
 Torreón, 916
 Tortugas, 621
 Tororitas, 770
 Tourism
 in Brazil, 1132
 in Peru, 1075–76, 1080–81, 1084, 1085, 1086
 Toxodonts, 433

- Trade, 123, 126, 138. *See also* Exchange networks
 at Algarrobo, 986
 at Amazonian sites, 950
 at Chachapoya sites, 910–11
 at Ecuadorian-Peruvian border region, 901
 at Ecuadorian sites, 265, 470, 476–77, 478, 509,
 515–16, 539, 873, 876
 in the Guianas, 284, 289, 290, 292, 298
 at San Pedro de Atacama, 981, 982, 983–84,
 988–89
 in southwestern Colombia, 397
 at Titicaca basin sites, 550, 554, 555
 at Tiwanaku sites, 741, 969
- Trafficking, 1076–77, 1078–79, 1153
- Trafal, 71–72
- Transformational change, 1139
- Transportation networks, 172–74
- Tras de la Vela, 442
- Treasure of San Sebastián, 750
- Trephination, 571, 580–81, 582
- Treponematosi, 49–50
- Tres Arroyos, 34, 69–70
- Tres Ventanas Cave, 110
- Triana, Miguel, 1104
- Tribes, 10, 12, 1139
- Trinidad, 123
- Trombeta, 294
- Trompo stones, 738
- Trophy heads, 554–55, 571, 572, 578, 579–80,
 593, 595, 752, 827, 1055–58
- Tropical Forest Culture (TFC), 430, 432, 454,
 943, 951
- Tropical Forest Tribes, 8–9, 933, 1139
- Trou Delft, 298
- Trou Reliquaire, 298
- Trujillo, 450, 454
- Tschudi, 784
- Tsimane Indigenous Territory, 178
- Tsunamis, 97
- Tubaboniba, 204
- Tubers, 105–6, 107, 140, 224, 548, 1121. *See also*
 Potatoes
- Tucacas, 445
- Tucumán, 591, 848, 991, 995
- Túcume, 762, 764f, 787, 793–96, 797,
 801, 1085
- Tukano, 367, 1022–23
- Tulan Cave, 112
- Tulipe, 474
- Tulpas, 532
- Tumaco, 389–90, 397–98, 490, 506
- Tumbaviro, 506
- Tumbes Valley, 762, 892, 894
- Tumipampa, 817
- Tumshucaico, 697
- Tunanmarca, 771
- Tunanz, 268, 274
- Tuncahuán, 490
- Tunel-1, 70
- Tunja, 394, 396
- Tunupa, 965, 974
- Tupac Katari, 1099
- Tupi, 321, 328, 368, 369, 932, 954, 1146
 center of dispersal for, 947
 expansion of, 18, 659–68
- Tupi-Guaraní linguistic group, 15, 185, 254, 369,
 662–63, 943–44, 946f, 947
- Tupinambá, 659, 661–62, 663, 664, 665, 666,
 667, 668
- Tupu, 738
- Tupukén, 433, 436
- Turi, 817, 849, 850f, 855, 857
- Turkeys, 121
- Turquoise, 885, 973
- Turtles, 196
- Tutishcainyo, 209
- Twined mats, 53–54
- Uchumachay, 37
- Uhle, 784
- Ullucu, 107, 110, 112
- Umbú Tradition, 239, 248
- Umosina, 947
- UNESCO, 1075, 1077, 1078, 1079, 1081, 1098,
 1119, 1132, 1154
- United States, 1074, 1078, 1079, 1082, 1130, 1973
- Universidad de la República, 1119
- University of Pennsylvania Museum, 1153
- Upani, 1032
- Upano River Valley, 263–77
 mound building, 270–76
 mound complexes, 266–70
 physical setting, 265–66
- Upper Buritaca Valley, 414, 415, 416f, 418, 419,
 423–24
- Upper Xingu basin, 943, 954–58
- Urabarru, 695
- Urbanism, 1150–51
 Andes (*see* Andean urbanism)
 in Chan Chan, 650
 Chimú, 784–86
- Uribe, Rafael, 1104
- Uricoechea, Ezequiel, 1104–5
- Urns
 at Andean sites, 451
 at Argentinian sites, 590
 at Camutins, 348, 349, 350, 352–53
 at Guayas Basin sites, 509
 at Guianas sites, 289, 292, 294, 296f, 297
 at Inca sites, 837
 at Llanos de Mojos sites, 929
 Maracá (*see* Maracá urns)
 at Peruvia, 317
 at Suriname coast sites, 315
- Uruá-Tucumã ceramics, 207
- Uruguai, 34, 239

- Uruguay, 1115–25
 campos of (*see* Campos)
 nationalism in, 1117–18
 new era in archaeology, 1119
 new understanding of prehistory, 1119–21
- Uruk, 636
- Ushnu, 855, 859
- Uyuntza, 268, 269
- Valdez, 597
- Valdivia culture, 85, 86, 118, 370, 460, 472, 871, 872, 880, 882, 884, 891–92, 893, 895, 1145
 overview, 461–66
 sedentism in, 82–84, 87
- Valencia, 429, 443–44
- Valle de la Plata, 386f, 387
- Valle de Leiva, 393–95
- Valloid culture, 288, 438–39
- Vargas, Getúlio, 1128
- Várzea, 189, 194, 196, 306–7, 430, 432, 947, 949–53. *See also* Amazonian floodplain
 culture of, 949–50
 major regions of, 951–53
- Vasquez de Espinoza, Antonio, 681
- Vegachayoc Moqo, 751, 752
- Vegas, 112, 870
- Velarde, 784
- Velasco, Juan de, 1064–66, 1071
- Venezuela, 429–55, 1144
 animal domestication in, 123
 coast of, 441–45
 Mesoindian Period in, 434–36
 Neindian Period in, 436–54
 northwestern, 448–51
 peopling of, 432–34
- Venezuelan Guiana, 279, 283
- Venezuelan llanos, 168, 277, 306
 eastern, 441–43
 western, 445–48
- Ventilla, 646
- Venus figurines, 462, 468
- Vergel-Valdivia pottery style, 254
- Vertical archipelagos, 672, 674
- Vertical complementarity, 138, 140, 986
- Vicuñas. *See* Camelids
- Vicús, 708, 710–12, 718, 899, 1153
- Vieira, 248
- Vila Rica, 1128
- Vilcanota Valley Rehabilitation and Management Project, 1083, 1084, 1086
- Vilcashuamán, 817
- Villages. *See also* Autonomous village societies
 farm, 12
 Guianas, 282–84
 Hertenrits, 316–17
 in northwestern Argentina, 587–92
 Tupi, 664–65
- Viña del Cerro, 973
- Viracochapampa, 742, 766
- Vira Vira, 913, 916
- Virú Tradition, 707, 710, 712, 713, 714, 717, 718.
 See also Gallinazo
- Virú Valley, 744, 762, 787, 802
- Virú Valley Project, 16, 614, 715
- Vizcacha, 688
- Volcanoes, 97, 119, 265, 266, 274, 466, 471, 472, 474, 506, 508
- Wageningen-1, 288, 289, 309, 310, 311, 312, 315, 317
- Wageningen-2, 311
- Wageningen-3, 311
- Wall paintings, 65
- Wanderly de Araújo Pinto, José, 1128
- Wanka, 118, 770, 771–72
- Warao, 283
- Warfare, 577, 579, 595, 635, 646, 699
- Wari, 14, 15, 131, 580, 634, 635, 636, 638, 639, 648, 650, 725, 731–54, 761, 765, 771, 775, 776, 777, 814, 825, 968, 1040. *See also* Huari
 Chachapoyas and, 911–13
 civic center of, 747f
 migration and, 672, 676, 677
 style diffusion and political unification, 738–44
 trophy head taking and, 1056–58
- Wari Kayan Necropolis, 568–69
- Wariwillka, 771
- Wasi, 816
- Water management
 in Amazonia, 172–74
 at Marajó Island, 341–42
- Watungasta, 852, 855
- Wayana, 230
- Wayäpi, 230
- Waynuna, 113
- Way-stations, 816
- Western South America, 145–54
- West Mound, 795
- Willey, Gordon, 12–13
- Wilson, David J., 15–16
- Witoto, 205
- Women. *See also* Gender differences
 of Camutins, 348, 352–54
 of Concopata, 752–53
 figurines depicting, 312, 352–54, 409
 in high elevation foraging societies, 140
 Inca, 817
 of Maracá, 1023
 sacrifice of, 1048
 of Sinú, 409
 of Titicaca basin, 554
- Wonotobo, 284, 286, 307, 316
- Wool, 129, 866

- World Archaeological Congress (WAC), 20
 World Bank, 1075, 1084
 World Heritage List (WHL), 1074, 1075, 1076,
 1079, 1081, 1087, 1098, 1132

 Xérez, Francisco de, 121
 Xinguanos, 189, 954–58
 Xingu River, 936
 Xokleng, 255

 Yachaywasi, 1082
 Yacila, 894
 Yacoraite, 597, 598
 Yale University, 1153
 Yams, 85, 229
 Yanoama, 230
 Yracuy, 448, 450
 Yasuní, 264, 479

 Yaunchu, 479
 Yaya-Mama, 553, 736, 1041
 Ychsma, 767, 768, 770, 777
 Yocavil Valley, 846–48, 849
 Young Coastal Plain (YCP), 303–4
 Yschma, 837
 Yucay, 821
 Yunga, 96
 Yuquipa, 268
 Yuraccama, 766
 Yurank, 268, 276
 Yutopián, 589, 592

 Zamagolli, 268, 270f, 274
 Zaña Valley, 762
 Zenúfana, 408–9, 413
 Zoned-Hachured Tradition, 365, 366, 948
 Zorrilla de San Martín, Juan, 1116, 1117